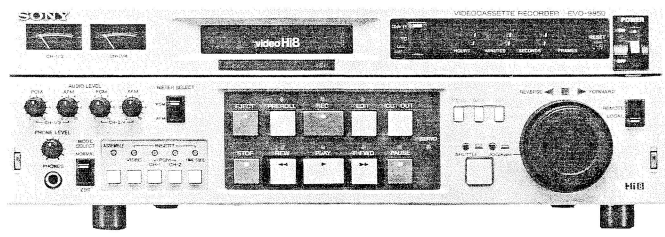
SONY

Hi-8 VIDEOCASSETTE RECORDER

EVO-9850



Hi8

SPECIFICATIONS

System

Recording system	Rotary 2-head helical scan Luminance: FM recording Color signal: Converted subcarrier direct recording
Video signal system	EIA standards, NTSC color
Audio recording system	AFM: Rotary head, FM system (matrix stereo) PCM: PCM format (two channels)

Video

Inputs	VIDEO IN (BNC type) x 1 1.0 Vp-p ± 0.3 Vp-p, 75 ohms unbalanced, sync negative S-VIDEO IN (4-pin mini-DIN) x1 Y: 1.0 Vp-p ± 0.3 Vp-p, 75 ohms, unbalanced, sync negative C: 0.286 Vp-p ± 0.07 Vp-p at burst level, 75 ohms, unbalanced DUB IN (7-pin) x 1 for 8 mm video Y: 0.5 Vp-p ± 0.2 Vp-p, 75 Ω, sync negative C: 0.5 Vp-p ± 0.1 Vp-p, 75 Ω, AC coupled (75% color bar red)
Outputs	VIDEO OUT (BNC type) x 1 1.0 Vp-p ± 0.2 Vp-p, 75 ohms, unbalanced, sync negative DUB OUT (7-pin) x 1, 8-mm/U-matic selectable MONITOR TV (8-pin) x 1 MONITOR VIDEO (BNC type) x 1 S-VIDEO OUT (4-pin mini-DIN) x 1 Y: 1.0 Vp-p ± 0.2 Vp-p, 75 ohms, unbalanced, sync negative C: 0.286 Vp-p ± 0.05 Vp-p at burst level, 75 ohms, unbalanced
Horizontal resolution	Hi8 mode recording: 400 lines (both B/W and color) (S-VIDEO signals) Standard 8-mm format recording: 240 lines (both B/W and color)
S/N	Hi8 mode: More than 45 dB (color) Standard 8-mm format: More than 45 dB (color)
Sync signal input	REF VIDEO IN (BNC type) x 2, loop-through 1.0 Vp-p ± 0.5 Vp-p, 75 ohms, unbalanced, sync negative
Recording level control	Automatic

Audio

Input	AUDIO INPUT CH-1/L, CH-2/R (XLR 3-pin female) x 1 each (mic/line selectable) LINE: 600 ohms, +4 dBm, balanced MIC: 10 kilohm, –60 dBs, balanced AUDIO INPUT CH-3/L, CH-4/R (XLR 3-pin female) x 1 each 600 ohms, +4 dBm, balanced
Output	AUDIO OUTPUT PCM CH-1/L, CH-2/R and AFM CH-3/L, CH-4/R (XLR 3-pin male) x 1 each +4 dBm (at 600 ohm load), balanced MONITOR AUDIO (phono jack) x 1 –5 dB (at 47 kilohm load) MONITOR TV (8-pin) x 1 PHONES (stereo phone jack) For 8-ohm headphones Level adjustable (from –18 to –46 dB)
Frequency response	AFM: 30 to 15,000 Hz PCM: 20 to 15,000 Hz (for audio channels 1, 2, 3 and 4)
Dynamic range	PCM: More than 80 dB
Wow and flutter	Less than 0.005 % RMS
Recording level control	Manual

Other functions

Sync system	Automatic switching between internal and external
Dropout compensator	Built-in
Remote control	REMOTE 1 (9-pin) x 1 Conforming to RS-422A TBC REMOTE (D-SUB 15-pin) x 1

Tape transport

Tape speed	14.3 mm/sec.
Recording and playback time	About 120 minutes (with E6-120/P6-120)
Fast forward and rewind time	Within 3 minutes (with E6-120/P6-120)
Pause	A still picture is obtained with long pause function
Search	Still, 1/20 to 17 times normal speed in forward and reverse directions
Usable tape	8-mm video system cassette tape For business use: E6-HMEX, P6-HMPX The above cassette are designed for businessed use and offer the best drop-out level E6-HME, P6-HMP, P6-MP series and equivalent We highly recommend you use P6-HMPX series tape for editing application becaue of durability. Don't use home-use 150 minutes cassettes tapes.

General

Power requirements	100 to 120 V AC, 50/60 Hz
Power consumption	60 W
Operating position	Horizontal (up to 20 degrees)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	424 x 146.5 x 452 mm (w/h/d) (16 3/4 x 5 7/8 x 17 7/8 inches) not including projecting parts and controls
Weight	About 14 kg (30 lb 14 oz)
Supplied accessories	AC power cord Cleaning cassette Operating instructions

Recommended video equipment and accessories

SMPTE time code interface kit EVBK-100
TBC remote control unit BVR-55
33P editing interface BKU-703A
Rack mount kit RMM-980
Editing control unit RM-450, BVE-600, BVE-910,
RM-440 (when the BKU-703A installed)
Digital multi effects system DME-450
Audio mixer MXP-29/VSP-A600
Multi remote control unit RM-555 (when BKU-703A installed)
Remote control unit RM-500, RM-580 (when the BKU-703A installed)
Video and audio switcher BVS-500
VTR selector RM-V5
Color video monitor Sony CVM and PVM series
Color video camera Sony DXC series
Remote control cable RCC-5G (9-pin), RCC-5F (33-pin)
Dubbing cable VDC-5 (5 m)
Monitor connecting cable VMC-3P (3 m), VMC-5P (5 m), VMC-10P (10 m)
S-VIDEO connecting cable YC-30V (3 m), SYC-2 (2m), SYC-5 (5 m)
Cleaning cassette V8-25CLH

Design and specifications are subject to change without notice.

SECTION 1
GENERAL DESCRIPTION

1-1. FEATURS

Advanced editing functions

Electronic editing functions

Using two EVO-9850s and the RM-450 editing control unit, a high-quality automatic electronic editing system can be constructed.
The preroll button allows you to perform manual editing in insert mode or assemble mode. In addition, using the BVE-600 series or BVE-900 series editing control unit (accessories) allows you to perform A/B roll editing[1] under the control of the 8-mm time code and built-in time base corrector (TBC)[2].

Quick access to edit points

The search dial gives you quick access to edit points. In SHUTTLE mode, you can play back pictures at any speed from 1/20 times to 17 times normal speed, in both forward and reverse directions. Still playback is also supported. In JOG mode, you can play back pictures at speeds from 0 to 1 times normal seed. Sound monitoring in JOG and SHUTTLE mode enables you to search for edit point easily.

Built-in 8-mm time code generator/reader

The built-in time code generator allows you to record 8-mm time codes together with video or audio signals. 8-mm time codes are read by the built-in time code reader during playback.

LED time counter

The unit's LED time counter displays the tape running time and 8-mm time code in hours, minutes, seconds and frames. This display is useful for checking recording times and the current tape position.

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1) **A/B roll editing:**
Editing system using two or more player VTRs and a recorder VTR.

2) **Time Base Corrector (TBC):**
An electronic circuit that stabilizes the playback signal electronically. The time base corrector reduces the deterioration in picture quality when transmitting or copying playback signals.

Ease of operation

Four channel audio

The unit has four input XLR connectors. You can select the channels for PCM[1] digital stereo recording or AFM[2] analog stereo recording by changing the switch position. The unit has two output XLR connectors for PCM audio and two output XLR connectors for AFM audio.

Noise reduction system

The digital luminance/chrominance noise reducer provides superior picture quality and makes life-like color reproduction possible.

Built-in time base corrector

The unit features a built-in time base corrector to compensate for timing irregularities. Thus, the unit outputs a stable playback video signal synchronized with the external reference signals. It can then supply those stable video signals to any kind of video equipment. The unit has switches and controls on its sub panel with which those video signals can be adjusted. Adjustment can also be done remotely by using the BVR-55 remote control unit (not supplied).

Easy-to-use front panel

All important controls have been clustered on the easy-to-use front panel. This panel is divided into an upper and lower part. The control panel can be tilted for the operator's convenience.

Setup menus

Settings can easily be made by using the front panel controls and menus displayed on the screen.

Standard 19-inch rack size

The unit can be mounted in an EIA standard 19-inch rack.

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1) **PCM (Pulse Code Modulation) recording:** The audio signal is converted to a digital signal and then recorded to the tape. PCM recording enables high quality sound with less distortion to be recorded and played back. This audio signal is recorded onto the tape's PCM tracks, so that you can later record an audio signal onto the PCM tracks of the tape where an AFM audio signal and video signal have already been recorded.

2) **AFM (Audio Frequency Modulation) recording:** The audio signal is frequency-modulated and then recorded with an FM video signal.

Others

Remote control operation

The unit can be controlled from Sony editing control units such as the RM-450, BVE-600 and BVE-910 via a standard RS-422A serial interface.

Self-diagnostics

In the event of a malfunction, the unit performs a self-diagnostic test and displays any error code in the time counter display window on the front panel and on a video monitor connected to the MONITOR connector.

Dubbing connector

The unit is equipped with 8-mm video input and output dubbing connectors. You can use these connectors to perform editing and dubbing to another EVO-9850 with very little degradation in picture quality. Also, by using the U-matic output dubbing connector or S-VIDEO input and output connectors, you can perform editing and dubbing to other Betacam SP VTRs, S-VHS VTRs and U-matic VTRs.

External time code interface

The EVBK-100 SMPTE time code interface kit (not supplied) allows the system to convert the 8-mm time code currently being played back to the SMPTE[1] time code (LTC)[2]. Also, this interface can lock the built-in time code generator to the incoming SMPTE time code.

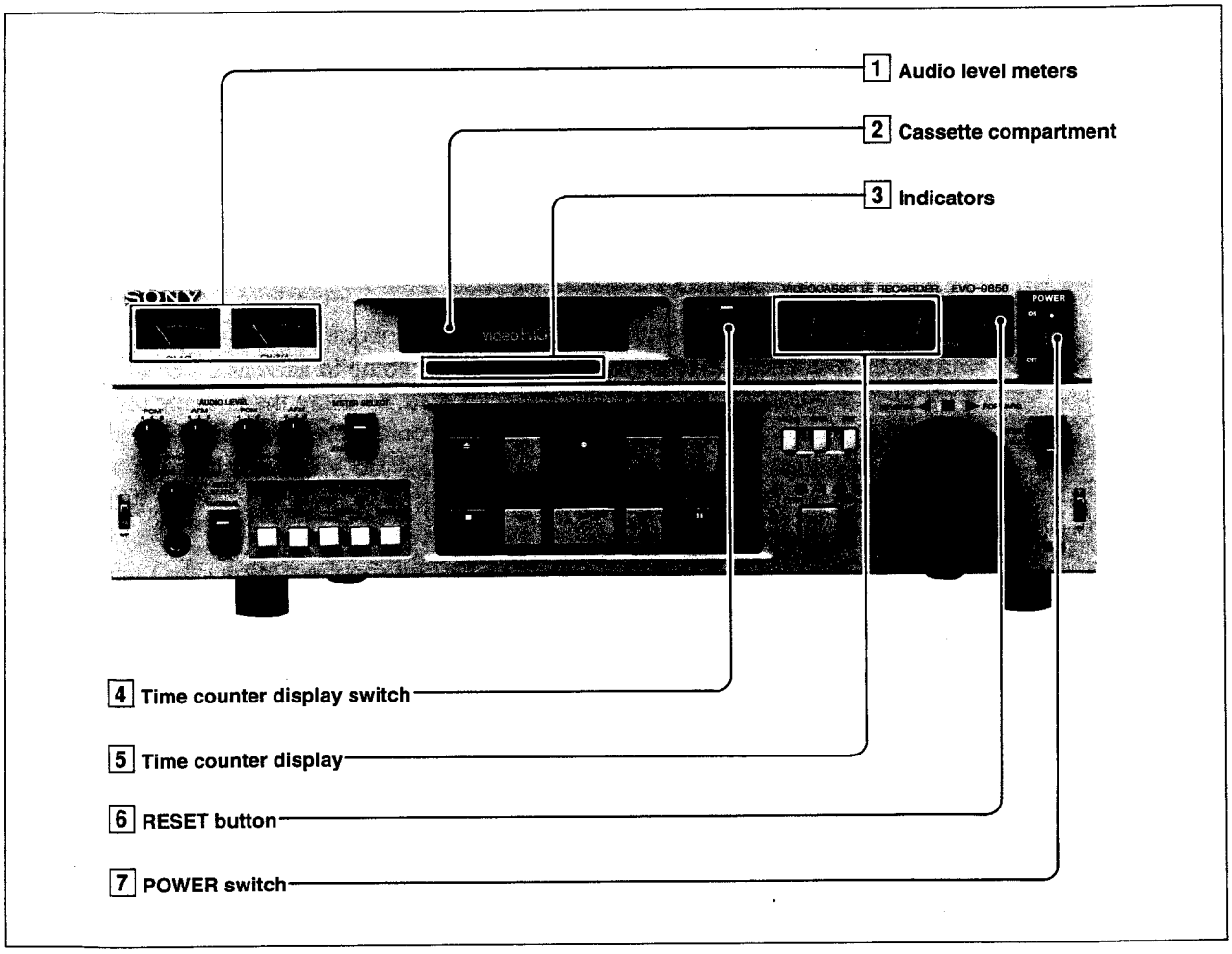
1) **SMPTE:**
Abreviation of Society of Motion Picture and Television Engineers, established in the USA.

2) **LTC (Longitudinal Time Code):**
A time code recorded on a separate track at the edge of the tape.

1-2. PARTS INDENTIFICATION

1-2-1. Control Panel (Front)

(Upper Control Panel)



Upper control panel

1 Audio level meters
Indicate the audio recording level in recording or EE[1] mode, and playback level in playback mode.

2 Cassette compartment
Insert cassettes here.

1) **EE mode (Electric-to-Electric mode):**
The input video signal, that has passed through the amplifier in the recorder, is displayed on the monitor. This is an EE mode picture, which enables the input signal to be checked on the monitor. The unit automatically enters EE mode when it is set to stop, F FWD or REW mode.

3 Indicators

indicator

Lights when a cassette is in the cassette compartment.

AUTO OFF indicator

Lights at power-on when moisture has condensed inside the unit. While this indicator is lit, a cassette cannot be loaded.

STAND BY indicator

Lights while a tape is being threaded from or unthreaded to the cassette inside the unit.

TC (time code) indicator

Lights when an 8-mm time code is being recorded, or when a tape on which an 8-mm time code has been recorded is being played back.

PCM indicator

Lights when sound is being recorded onto the PCM tracks of a tape or during PCM audio playback.

SP (standard play) indicator

Lights when the power is turned on. This lamp goes off when a tape recorded in LP (long play) mode is played back.

Hi8 indicator

Lights when the power is turned on. This lamp goes off when a cassette that is not recorded in Hi8 format is loaded.

4 Time counter display switch

Selects what is displayed in the time counter display 5, as follows.

COUNTER: Displays the amount of tape travel in hours, minutes, seconds and frames.

TC: The item to be displayed depends on the setting of the U BIT/TIME switch on the sub panel.
When the U BIT/TIME switch is set to TIME: Displays the 8-mm time code.
When the U BIT/TIME switch is set to U BIT: Displays the user bit.

DIAL MENU: The unit enters the dial menu operation mode. The dial menu is displayed. In this mode, any other functions are deactivated.

5 Time counter display

Displays the item selected by the time counter display switch 4.

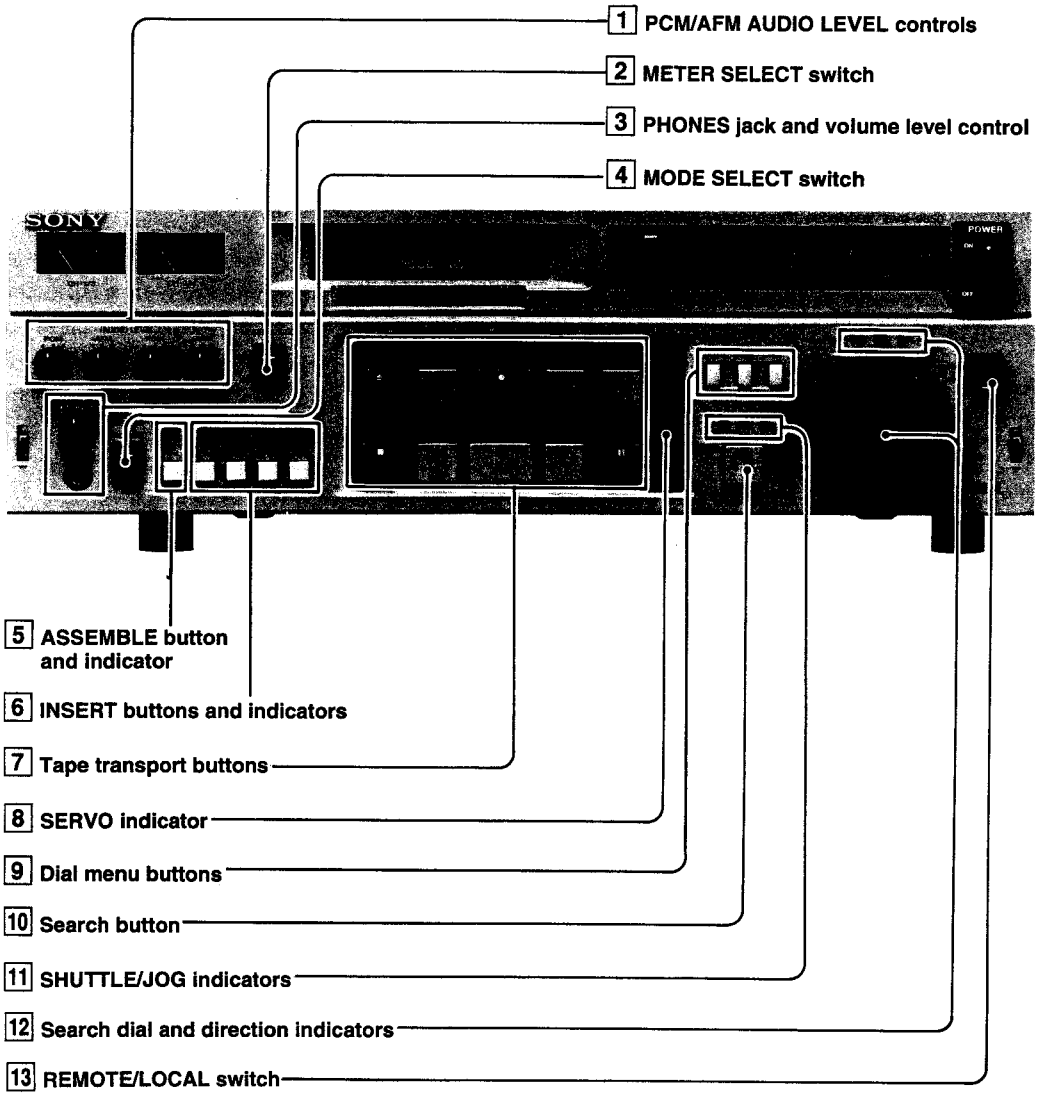
6 RESET button

When the time counter display switch 4 is set to COUNTER and the time counter display 5 indicates the amount of the tape travel, press this button to reset time counter display and display 0:00:00:00 on the time counter display.

7 POWER switch

Set this switch to ON to turn on the power. The audio level meter and time counter display will light.

(Lower Control Panel)



Lower control panel

1 PCM/AFM AUDIO LEVEL controls

You can adjust the audio recording levels independently as shown below.

Functions of PCM/AFM AUDIO LEVEL controls

Control	Input signal to be adjusted	
	Input connector	Recording system
PCM CH-1	CH-1/L or CH-3/R	PCM
PCM CH-2	CH-2/R or CH-4/R	PCM
AFM CH-1	CH-1/L or CH-3/L	AFM
AFM CH-2	CH-2/R or CH-4/R	AFM

2 METER SELECT switch

Selects the audio whose level is to be displayed on the audio level meter.

PCM: Displays the recording level while the audio input signal is being recorded onto the PCM track. During playback, the meter displays the playback level.

AFM: Displays the recording level while the audio input signal is being recorded onto the AFM track. During playback, the meter displays the playback level.

[3] PHONES jack and volume level control

Connect 8-ohm stereo headphones to monitor the signal selected with the MONITOR SELECT switch. Adjust the volume with the volume level control.

[4] MODE SELECT switch

EDIT: Set the switch to this position to perform editing. The unit is always synchronized with the input video signal regardless of the operation mode (record, playback, etc.)

NORMAL: Set the switch to this position in playback mode. The unit is synchronized with the internally-generated reference signal.

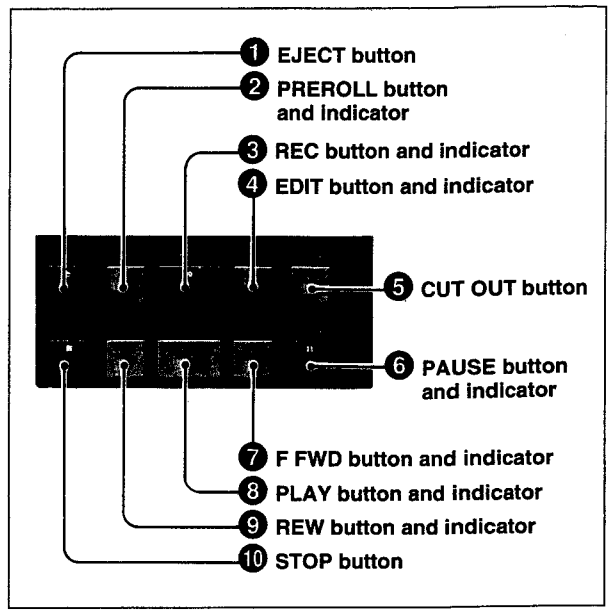
[5] ASSEMBLE button and indicator

Press this button to select ASSEMBLE edit mode. The indicator above the button will light. Press again to cancel ASSEMBLE edit mode.

[6] INSERT buttons and indicators

In INSERT edit mode, press the VIDEO, PCM CH-1, PCM CH-2 or TIME CODE buttons to select the desired input signal. The indicator above the selected button lights. To cancel, press the button again. The light will go off.

[7] Tape transport buttons


1 EJECT button
2 PREROLL button and indicator
3 REC button and indicator
4 EDIT button and indicator
5 CUT OUT button
6 PAUSE button and indicator
7 F FWD button and indicator
8 PLAY button and indicator
9 REW button and indicator
10 STOP button

Tape transport buttons

❶ EJECT button

Press this button to eject the cassette.

❷ PREROLL button and indicator

When you press this button, the tape is rewound for 5 seconds then stops in pause mode.

❸ REC (record) button and indicator

Press this button together with the PLAY button to start recording.
Pressing the REC button allows you to monitor the picture and sound in EE mode, as long as you keep the button held down.

❹ EDIT button and indicator

Press this button together with the PLAY button to start editing.
Pressing the EDIT button allows you to monitor the picture and sound of the input signals selected with the ASSEMBLE or INSERT buttons in EE mode, as long as you keep the button held down.

❺ CUT OUT button
Press this button to finish ASSEMBLE or INSERT editing. Edit mode is canceled, but the tape continues to run in playback mode. When you press this button in record mode, record mode is canceled. When you press this button in pause mode after preroll, edit mode is canceled.

❻ PAUSE button and indicator
Press this button to stop the tape momentarily. To restart the tape, press this button again. When you press this button during recording, the EE picture is displayed. When you press this button during playback, a still picture is displayed. When you press the PLAY, F FWD, REW or search buttons during pause mode, pause mode will be released and the tape will run in the mode corresponding to the pressed button.

❼ F FWD (fast forward) button and indicator
Press this button to fast forward the tape. You can monitor the picture and the sound in EE mode during fast forwarding.

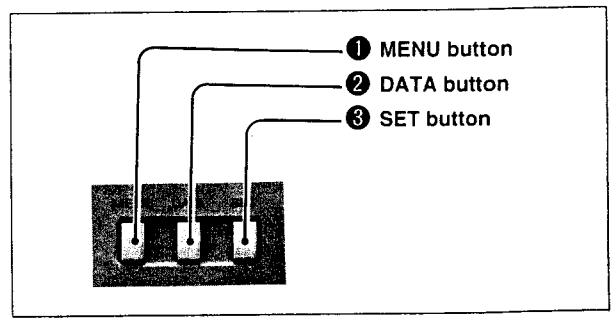
❽ PLAY button and indicator
Press this button to start playback.
Press the PLAY button together with the REC or EDIT button to begin recording or editing.

❾ REW (rewind) button and indicator
Press this button to rewind the tape. You can monitor the picture and the sound in EE mode during rewinding.

❿ STOP button
Press this button to stop the tape transport completely. You can monitor the picture and the sound in EE mode during stop mode.

[8] SERVO indicator
During playback, lights when the drum servo and capstan servo lock.

[9] Dial menu buttons
Use the following dial menu buttons only when you set the time counter display switch to DIAL MENU to change the settings on the menu.



Dial menu buttons

❶ MENU button
While holding down this button, turn the search dial in JOG mode to select the menu item.

❷ DATA button
While holding down this button, turn the search dial in JOG mode to set the data.

❸ SET button
Press this button after changing one or more items in menu. The changes will be saved.

[10] Search button
Press this button to place the unit in search mode. Searching with the search dial in JOG or SHUTTLE mode is now possible.
You can enter search mode without pressing the search button. Refer to dial menu 209 of the enhanced menu on chapter 2 for more information.

[11] SHUTTLE/JOG indicators
The SHUTTLE indicator lights when the unit is in SHUTTLE mode. The JOG indicator lights when the unit is in JOG mode. To change the mode, press the search dial.

12 Search dial and direction indicators

Functions as a search dial to quickly locate edit points. Or, functions as a selector for the dial menu operation, according to the setting of the time counter display switch.

Function of the search dial

Time counter display switch setting	Function of the search dial
COUNTER or TC	Search for edit point
DIAL MENU	Dial menu operation

The details of the functions are as follows.

Search for edit point

Set the counter display switch to COUNTER or TC, then press the search button. You can search for an edit point by rotating the search dial to change the playback speed and direction in JOG or SHUTTLE mode. Press the dial to toggle between SHUTTLE or JOG modes. The SHUTTLE or JOG indicator will light to indicate which mode you have selected.

Search dial function in SHUTTLE/JUG mode

Mode	Dial function
SHUTTLE mode	Turn the dial to a desired angle to select a playback speed from ±1/20 to 17 times normal speed. The speed at the center position is 0, corresponding to a still picture.
JOG mode	Rotate the dial at a desired speed to select any speed between 0 and ±1 times normal speed. Unlike in SHUTTLE mode, you will not feel any detents as you rotate the dial.

The tape running direction is indicated by the direction indicators.

- ▷ : lights when you rotate the dial clockwise to run the tape forward.
- ◁ : lights when you rotate the dial counterclockwise to run the tape in reverse.
- □ : lights while the dial is stopped.

Dial menu operation

Set the counter display switch to DIAL MENU.

Rotate the dial while holding down the MENU button or the DATA button to set the characters or numbers on the display.

For more information about the dial menu operation, see "System setup from Menu" chapter 2.

13 REMOTE/LOCAL switch

Set this switch to control the unit either locally or from the equipment connected to the REMOTE 1 connector on the rear panel.

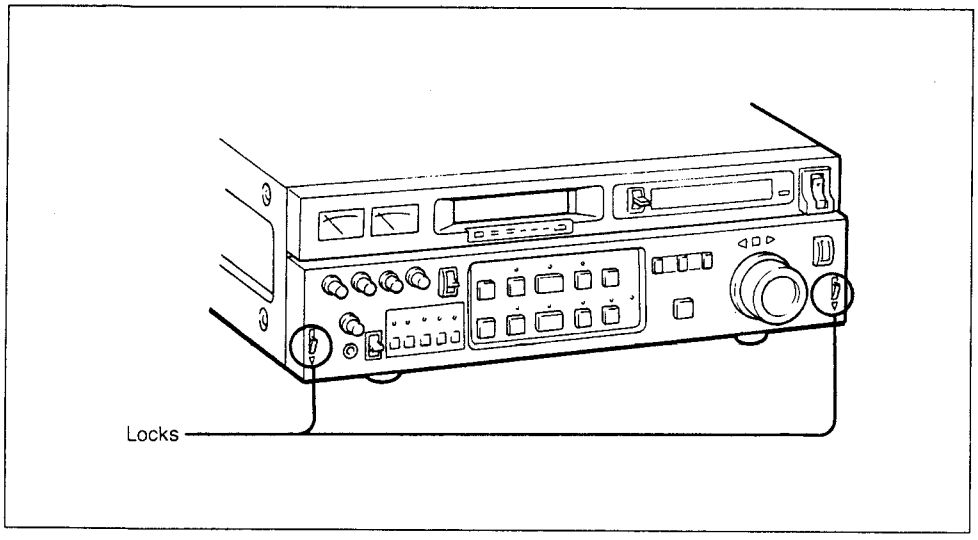
REMOTE: The unit is controlled from an external unit connected to the 9-pin REMOTE 1 connector on the rear panel. Setting this switch to REMOTE disables all the tape transport buttons on the control panel, except for the STOP and EJECT buttons.

LOCAL: The unit is controlled from its control panel.

1-2-2. Sub Panel (Inside the Control Panel)

How to open and tilt the lower control panel

To change the settings of the switches on the sub-panel, inside the control panel, open the lower control panel as illustrated. You can tilt the control panel up through 30°, 60° or 90°.

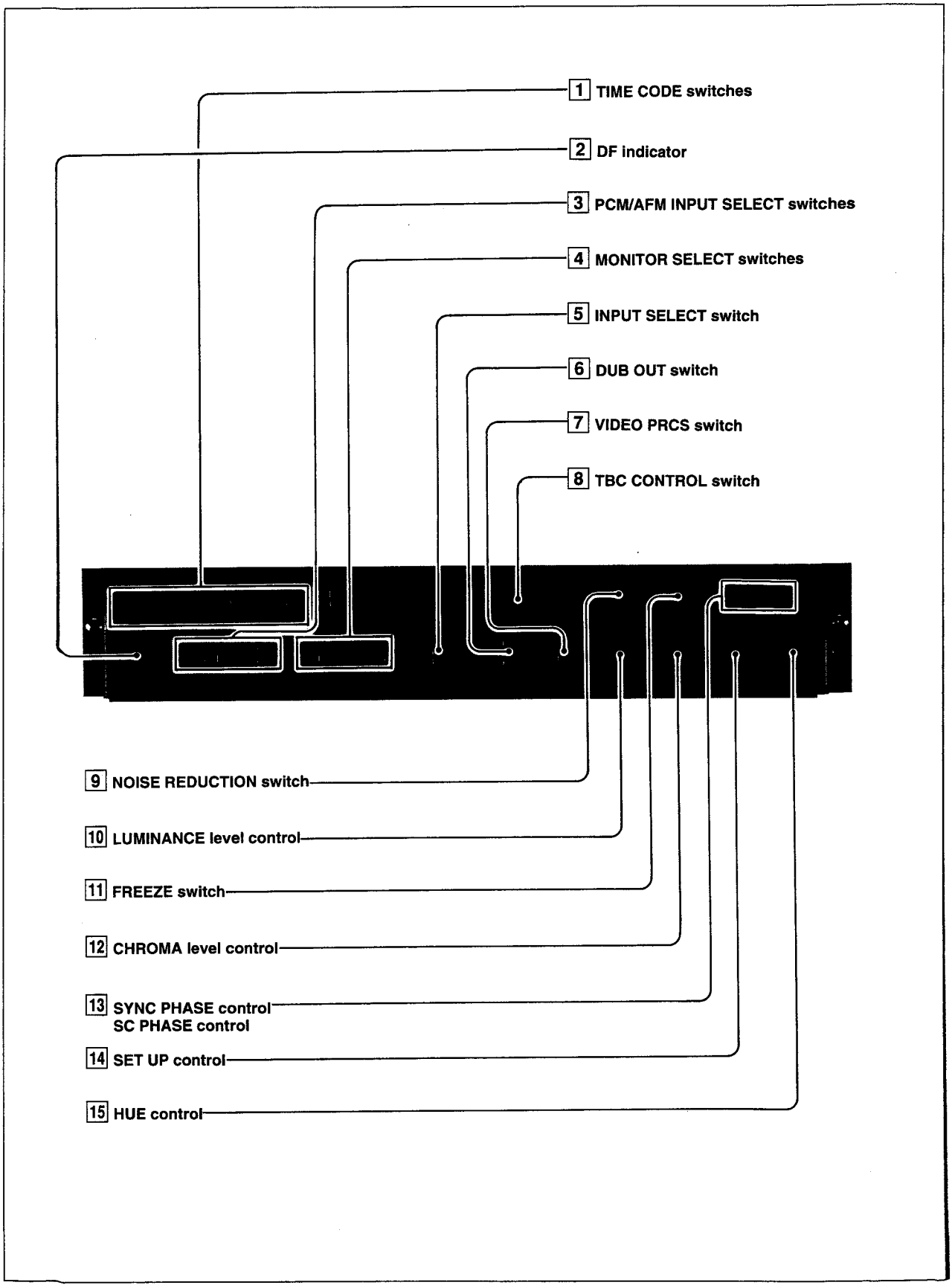


Opening the lower control panel

1 Push down the locks on the both sides simultaneously so that the lower half of the front panel moves out.

2 Tilt the panel up and lock it at 30°, 60° or 90°. Check that both sides are firmly locked.

(Sub Panel)



Sub panel

[1] TIME CODE switches

EXT/INT (external/internal) switch

EXT: Set the switch to this position to use the input from the TIME CODE IN connector. This is only available when the EVBK-100 SMPTE time code interface kit (accessory) is installed.

INT: Set the switch to this position to use the built-in time code generator.

Factory setting: INT

REGEN (regenerate)/PRESET switch

REGEN: Regenerate the initial setting for the built-in time code generator, using the input external time code or the played back time code read by the built-in time code reader.

PRESET: Preset the initial value for the time code generator, using the control panel or the value input from a remote control unit connected through the 9-pin REMOTE 1 connector.

Factory setting: PRESET

FREE RUN/REC RUN (generator operation mode) switch

FREE RUN: The time code advances regardless of the unit's operating mode, until the power is turned off.

REC RUN: The time code advances only during recording. This setting is valid only if the EXT/INT switch is set to INT, and the REGEN/PRESET switch is set to PRESET.

Factory setting: FREE RUN

U BIT/TIME (user bit/8-mm time code display) switch

This switch determines whether the time code or user bits will be displayed in the time counter display.

U BIT: Set the switch to this position to display the user bits on the tape, read by the built-in time code reader or during recording.

TIME: Set the switch to this position to display the 8-mm time code on the tape read by the built-in time code reader or during recording.

Factory setting: TIME

[2] DF (drop frame) indicator

Lights when the recorded/played-back 8-mm time code is set in drop frame mode.

[3] PCM/AFM INPUT SELECT switches

Selects the recording method for the audio signal input to each channel of the four AUDIO INPUT connectors.

PCM CH1/2 CH3/4 switch

Selects the channel for PCM recording. Set the switch to CH1/2 when recording signals input to the AUDIO INPUT CH-1/L and CH-2/R connectors. Set the switch to CH3/4 when recording signals input to the AUDIO INPUT CH-3/L and CH-4/R connectors.

AFM CH3/4 CH1/2 switch

Selects the channel for AFM recording. Set the switch to CH3/4 when recording signals input to the AUDIO INPUT CH-3/L and CH-4/R connectors. Set the switch to CH1/2 when recording signals input to the AUDIO INPUT CH-1/L and CH-2/R connectors.

[4] MONITOR SELECT switches

Select the sound to be output from the PHONES connector on the front panel and the MONITOR connectors on the rear panel.

PCM/AFM switch

PCM: Set the switch to this position to monitor PCM-recorded sound.

AFM: Set the switch to this position to monitor AFM-recorded sound.

Factory setting: PCM

CH-1/MIX/CH-2 switch

Selects the sound to be output from the PHONES connector and MONITOR connectors. The recording mode of the output sound depends on the setting of the PCM/AFM switch.

CH-1: The sound recorded on the PCM channel 1 or the AFM left channel

MIX: Mixed sound recorded on the PCM channel 1 and 2 or on the AFM left and right channels

CH-2: The sound recorded on the PCM channel 2 or the AFM right channel.

5 INPUT SELECT switch

Selects the video signal to be recorded.

LINE: Set the switch to this position to record the video signal input via the VIDEO IN connector.

S-VIDEO: Set the switch to this position to record the video signal input via the S-VIDEO connector.

DUB: Set the switch to this position to record the video signal input via the DUB IN (8-mm) connector.

6 DUB (dubbing) OUT switch

Set this switch according to the type of the VTR connected to the DUB OUT connector.

8 mm: Set the switch to this position to connect the EVO-9850.

U-CONV: Set the switch to this position to connect a conventional (not SP system) U-matic VTR, or when using conventional U-matic cassettes in an SP system U-matic VTR.

SP: Set the switch to this position to connect an SP system U-matic VTR or when using the SP cassettes.

7 VIDEO PRCS (process) switch

Selects the video signal characteristics during playback, editing and dubbing.

EDIT: Set the switch of the player EVO-9850 to this position when editing and when dubbing. The video signal is automatically adjusted to obtain the optimum dubbing picture quality.

NORM: Set the switch to this position when monitoring the played back picture.

Refer to the NOTE 1 on page 1-14.

8 TBC (time base corrector) CONTROL switch

LOCAL: Set the switch to this position to control the time base corrector from the sub-panel.

REMOTE: Set the switch to this position to control the time base corrector from a BVR-55 remote control unit (not supplied).

9 NOISE REDUCTION switch

Selects the noise reduction level of the digital noise reduction circuits during playback.

OFF: The digital luminance/chrominance noise reduction circuits do not work.

1: Low chrominance noise reduction level

2: High chrominance noise reduction level

The luminance noise reduction circuit can be turned on/off by using the dial menu 228.

Refer to the NOTE 1 on page 1-14.

10 LUMINANCE level control

Adjusts the luminance output level within a range of ±3dB with this control.

11 FREEZE switch

ON: Set the switch to this position to monitor a frame of the moving picture as a still picture during playback. The frame being played back when you set the switch to ON is sent to memory and output as a still picture.

OFF: Set the switch to this position to release the FREEZE mode and output the playback picture again.

12 CHROMA level control

Adjusts the chroma output level within a range of ±3dB.

13 SYNC PHASE control

SC (subcarrier) PHASE control

Use these controls when you need to synchronize the unit's output phase with a reference signal, or when you wish to achieve special effects such as fades or dissolves when using the unit with an editing control unit and other VTRs.

SYNC PHASE control

Adjusts the output sync phase within -1 to +3µs with respect to the reference signal input to the unit.

SC PHASE control

Adjusts the output subcarrier phase within 360 degrees with respect to the reference signal input to the unit.

[14] SET UP control

Adjusts the setup level of the output video signal from 0 to 15 IRE.

[15] HUE control

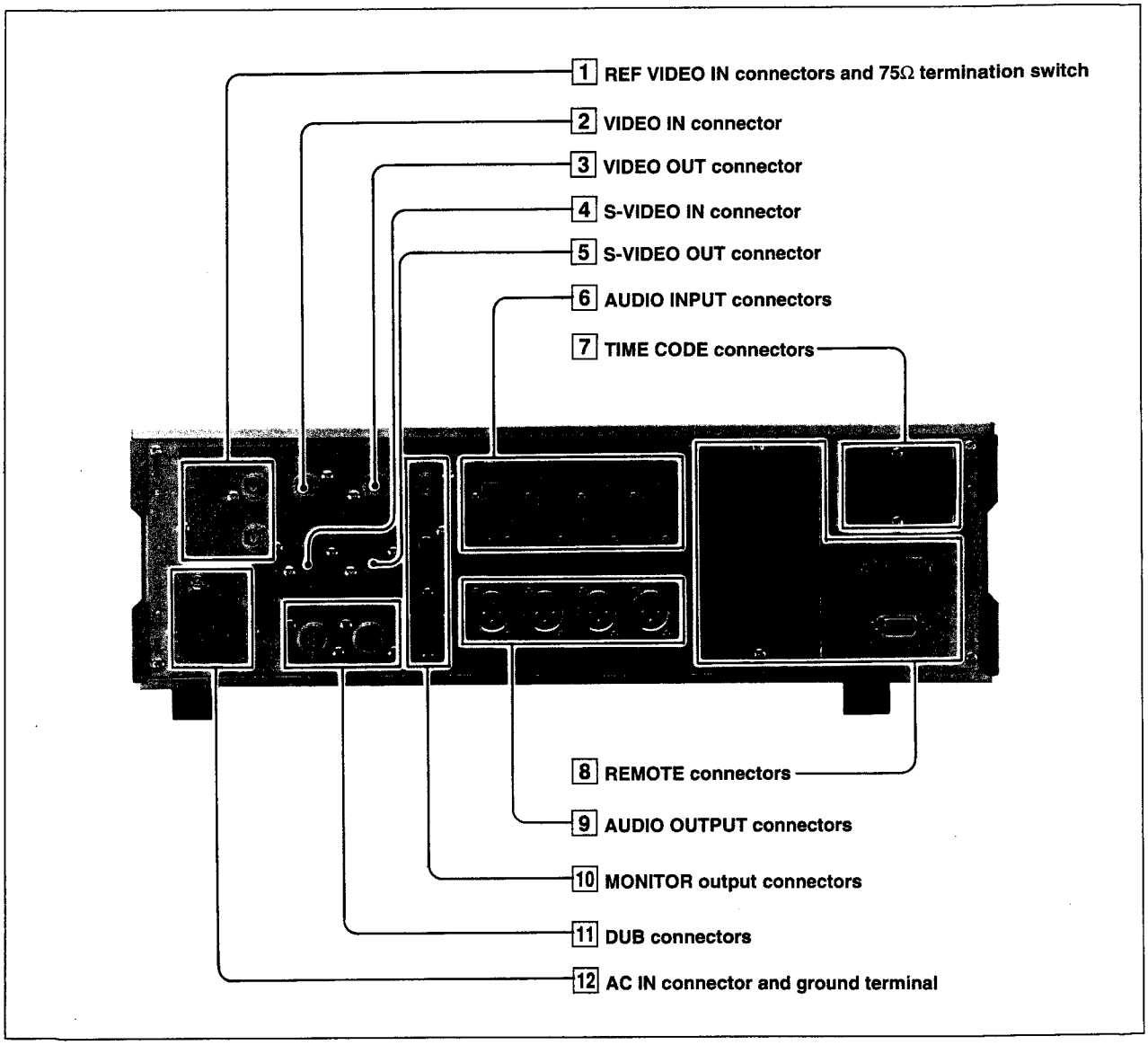
Adjusts the output hue (burst and chroma relative phase) within ±30 degrees.
The HUE control does not adjust the burst phase of the output signal relative to that of the reference signal.

Note 1) Selection of Noise Reduction Mode by Switch Setting

Status of YNR, CNR and Luminance Enhancer of a VTR is determined by the settings of VIDEO PRCS (PROCESS) switch, NOISE REDUCTION switch and dial menu 228/229 (YNR/ENHANCER), as shown below.

SWITCH & MENU SETTING				VTR MODE		
SWITCH		DIAL MENU				
VIDEO PRCS	NOISE REDUCTION	YNR	ENHANCER	YNR	CNR	LUMINANCE ENHANCER
NORMAL	2	ON	ON	ON	HIGH	ON
	1			ON	LOW	
	OFF			OFF	OFF	
	2	ON	OFF	ON	HIGH	OFF
	1			ON	LOW	
	OFF			OFF	OFF	
	2	OFF	ON	OFF	HIGH	ON
	1				LOW	
	OFF				OFF	
EDIT				OFF	OFF	OFF

1-2-3. Connector Panel (Rear)


1 REF VIDEO IN connectors and 75Ω termination switch
2 VIDEO IN connector
3 VIDEO OUT connector
4 S-VIDEO IN connector
5 S-VIDEO OUT connector
6 AUDIO INPUT connectors
7 TIME CODE connectors
8 REMOTE connectors
9 AUDIO OUTPUT connectors
10 MONITOR output connectors
11 DUB connectors
12 AC IN connector and ground terminal

Connector panel

1 REF (reference) VIDEO IN connectors (BNC type) and 75Ω termination switch
Connect the reference video signal. The second connector is used for loop-through output. When both connectors are used for a bridge connection, set the 75Ω termination switch to OFF. Otherwise, set the switch to ON.

2 VIDEO IN connector (BNC type)
Connect composite video signals.

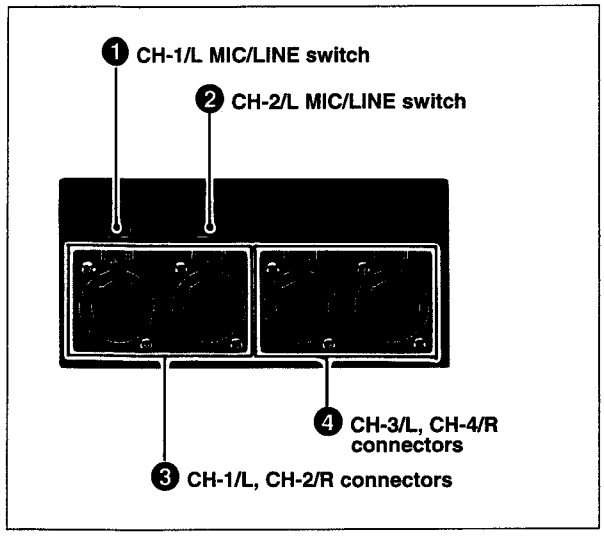
3 VIDEO OUT connector (BNC type)
Connect to a VTR or monitor video input connector to output composite video signals.

4 S-VIDEO IN connector (4-pin)
Input separate Y and C signals by connecting to the S-VIDEO output connector of another VTR or video equipment.

5 S-VIDEO OUT connector (4-pin)
Outputs separate Y and C signals. Can be connected to any VTR or monitor with an S-VIDEO input connector.

6 AUDIO INPUT connectors

The unit is equipped with four audio input connectors. When there are two audio source systems, connect each system to CH-1/L and CH-2/R, and to CH-3/L and CH-4/R respectively. You can select the audio recording method (PCM or AFM) for channels 1 and 2, and channels 3 and 4 by setting the INPUT SELECT switch on the sub panel.



Audio input connectors

1 CH-1/L MIC (microphone)/LINE switch

Selects the signal input to the CH-1/L connector.

MIC: Set the switch to this position to connect a microphone.

LINE: Set the switch to this position to connect a player VTR or audio equipment.

2 CH-2/L MIC (microphone)/LINE switch

Selects the signal input to the CH-2/R connector.

MIC: Set the switch to this position to connect a microphone.

LINE: Set the switch to this position to connect a player VTR or audio equipment.

3 CH-1/L, CH-2/R connectors (XLR 3-pin)

Connect audio signals from a player VTR, audio equipment or microphones.

4 CH-3/L, CH-4/R connectors (XLR 3-pin)

Connect audio signals from a player VTR or audio equipment.

7 TIME CODE connectors (accessories)

Use these connectors to input and output the LTC of SMPTE time code when the EVBK-100 SMPTE time code interface kit is installed.

TIME CODE IN connector (BNC type)

Inputs the LTC from the external time code generator or another VTR. The built-in 8-mm time code generator is locked to the input LTC.

TIME CODE OUT connector (BNC type)

Outputs the LTC, converted from the 8-mm time code by the unit .

8 REMOTE connectors

TBC REMOTE connector (15-pin)

To remotely control the built-in time base corrector, connect the BVR-55 remote control unit (not supplied) to this connector.

Note

Always turn off the unit's power before connecting remote control equipment to the TBC REMOTE connector.

REMOTE 1 connector (9-pin)

Connect a Sony editing control unit such as an RM-450 using a 9-pin remote control cable, to perform editing.

REMOTE 2 connector (33-pin) (not supplied)

Connect a Sony editing control unit with a 33-pin remote connector such as the RM-440 when the BKU-703A 33-pin editing interface (accessories) is installed.

9 AUDIO OUTPUT connectors

PCM CH-1/L, CH-2/R (PCM audio output) connectors (XLR 3-pin)
Outputs the audio signal recorded on the PCM tracks.

AFM CH-3/L, CH-4/R (AFM audio output) connectors (XLR 3-pin)
Outputs the audio signal recorded on the AFM tracks.

10 MONITOR output connectors

VIDEO output connector (BNC type)
Connect to the video input connector of a color monitor. Information superimposed on a picture in dial menu operation mode will also be output.

AUDIO output connector (phono jack)
Outputs the audio signal selected using the MONITOR SELECT switch on the sub panel.

TV monitor connector (8-pin)
Connect to the VTR connector of a color video monitor, using the 8-pin connecting cable (not supplied), to output audio and video signals, including data superimposed with the dial menu.
During playback, you will hear the sound recorded on the channel selected using the MONITOR SELECT switch.

11 DUB (dubbing input/output) connectors

DUB IN (8 mm) connector (7-pin)
Use to input the video signal to be dubbed from another EVO-9850 Hi8 video recorder.
Connect to the DUB OUT connector of the other EVO-9850 by using the 7-pin dubbing cable (accessory).

DUB OUT (8 mm/U-matic) connector (7-pin)
Outputs the signal selected using the DUB OUT switch on the sub panel.
Connect to the DUB IN connector of the other EVO-9850 or the DUB IN connector of a U-matic VTR by using the 7-pin dubbing cable (accessory).

12 AC IN connector and ground terminal

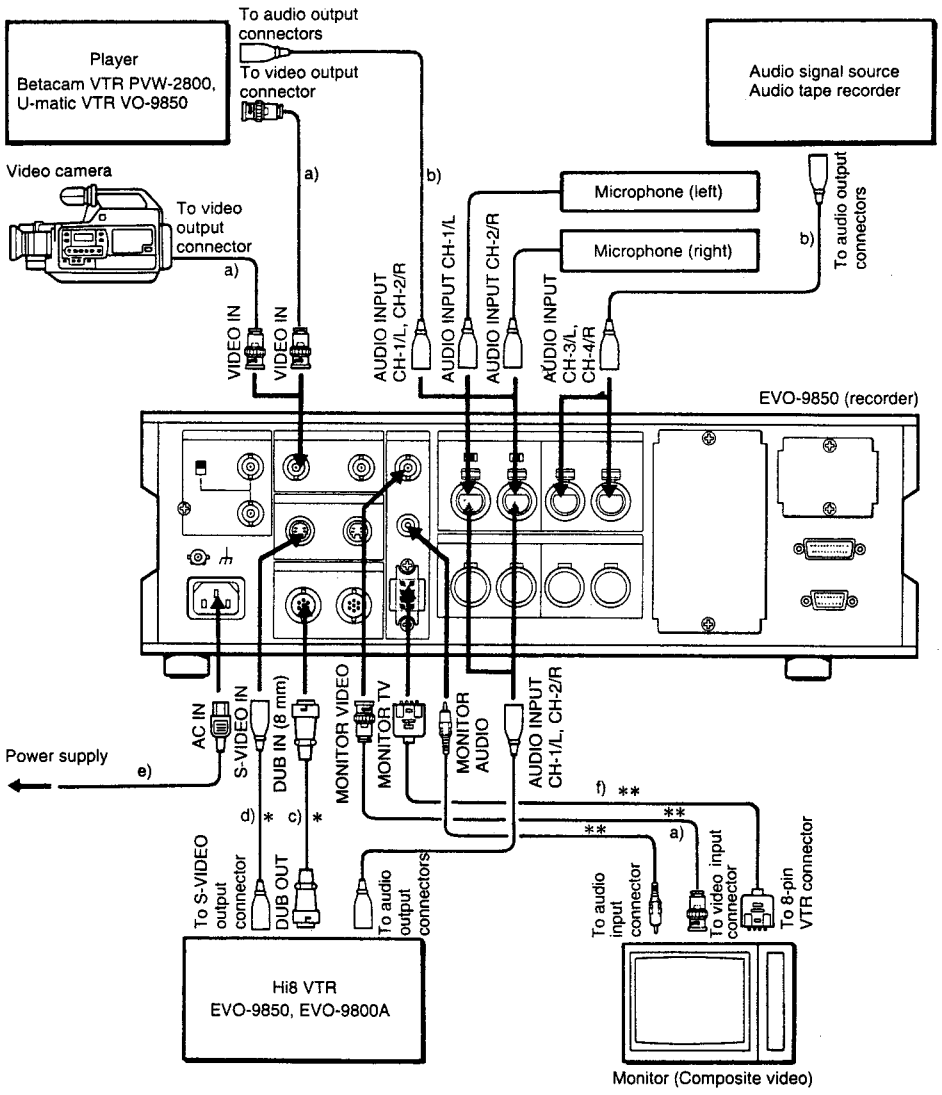
AC IN: Connect an AC power source using the AC power cord (supplied).
⏚ **(ground):** Connect to ground line.

1-3. CONNECTIONS

Basic Connections

The diagrams in this subsection show how to connect input and output signals using the appropriate cable, to the connectors on the unit's connector panel. Use these diagrams as a guide to connect the necessary signals to and from the video equipment you intend to use for actual recording and playback.

Connections for recording



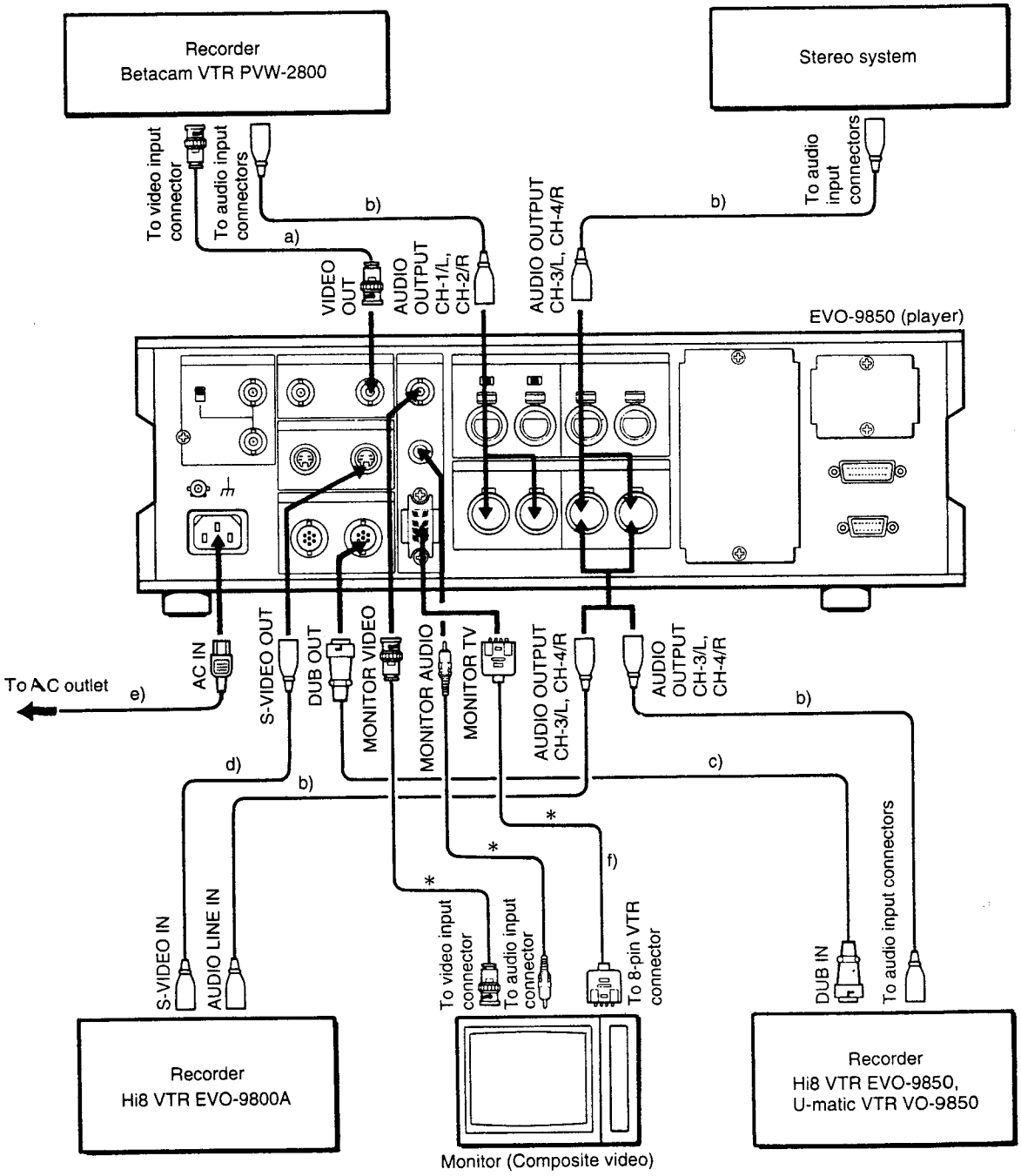
* When you connect another EVO-9850, use either.

** When connection is made with the 8-pin monitor cable, it is not necessary to make connections with 75-ohm coaxial cable and two Cannon XLR cables.

a) 75-ohm coaxial cable with BNC connectors
b) Two Cannon EC-10XLR cables
c) 7-pin dubbing cable (optional)
d) DIN 4-pin cable YC-30V, SYC-2/5
e) Power cord (supplied)
f) 8-pin monitor cable

Connections for recording

Connections for playback

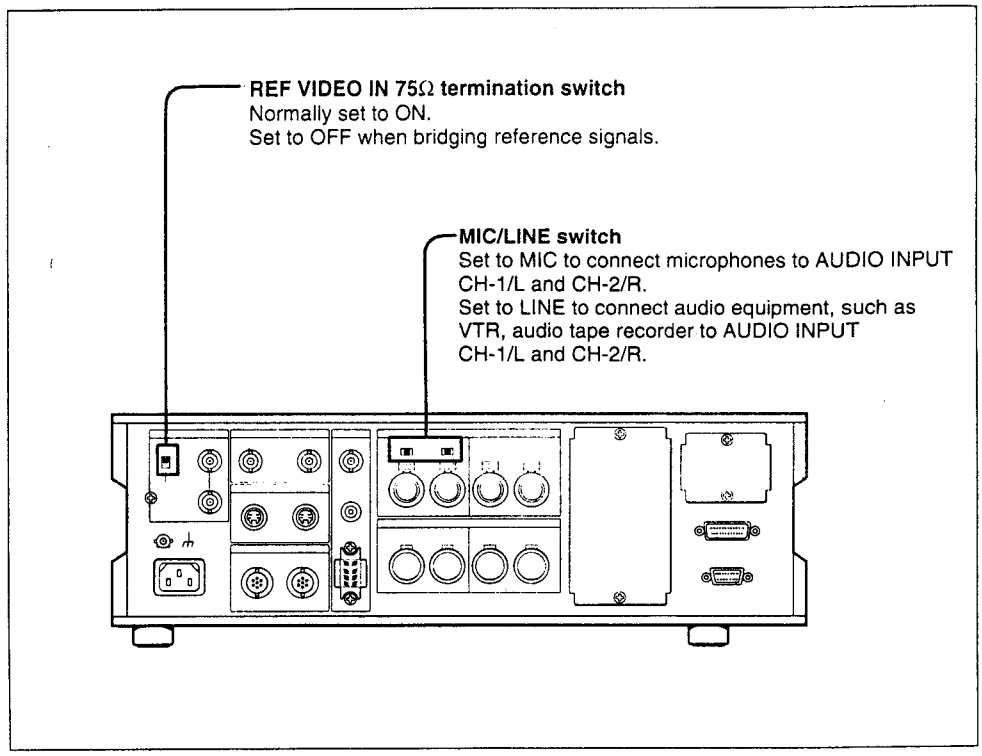


* When connection is made with the 8-pin monitor cable, it is not necessary to make connections with 75-ohm coaxial cable and two Cannon XLR cables .

a) 75-ohm coaxial cable with BNC connectors
b) Two Cannon EC-10XLR cables
c) 7-pin dubbing cable (optional)
d) DIN 4-pin cable YC-30V, SYC-2/5
e) Power cord (supplied)
f) 8-pin monitor cable

Connections for playback

Connector panel switch settings


REF VIDEO IN 75Ω termination switch
Normally set to ON.
Set to OFF when bridging reference signals.
MIC/LINE switch
Set to MIC to connect microphones to AUDIO INPUT CH-1/L and CH-2/R.
Set to LINE to connect audio equipment, such as VTR, audio tape recorder to AUDIO INPUT CH-1/L and CH-2/R.

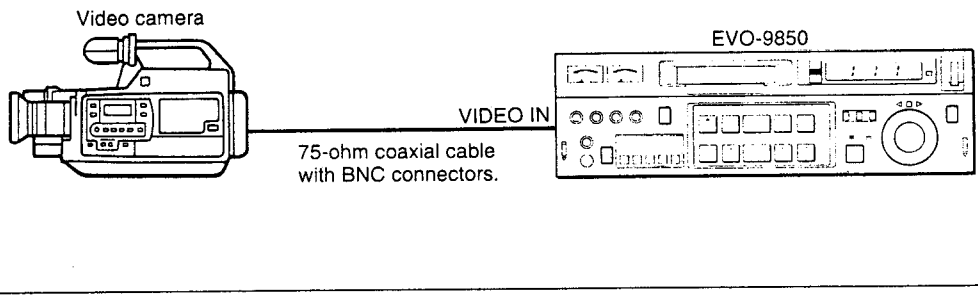
Connector panel switch settings

Editing System Connections

Refer to the diagrams below, and to the user manuals for the VTRs and other video equipment constituting your system, when connecting input and output signals. When using two or more VTRs, a reference signal is needed to synchronize the unit's built-in time base corrector.

For more information, see "Reference Signal Connections" on page 1-24.

Manual editing system using the preroll button

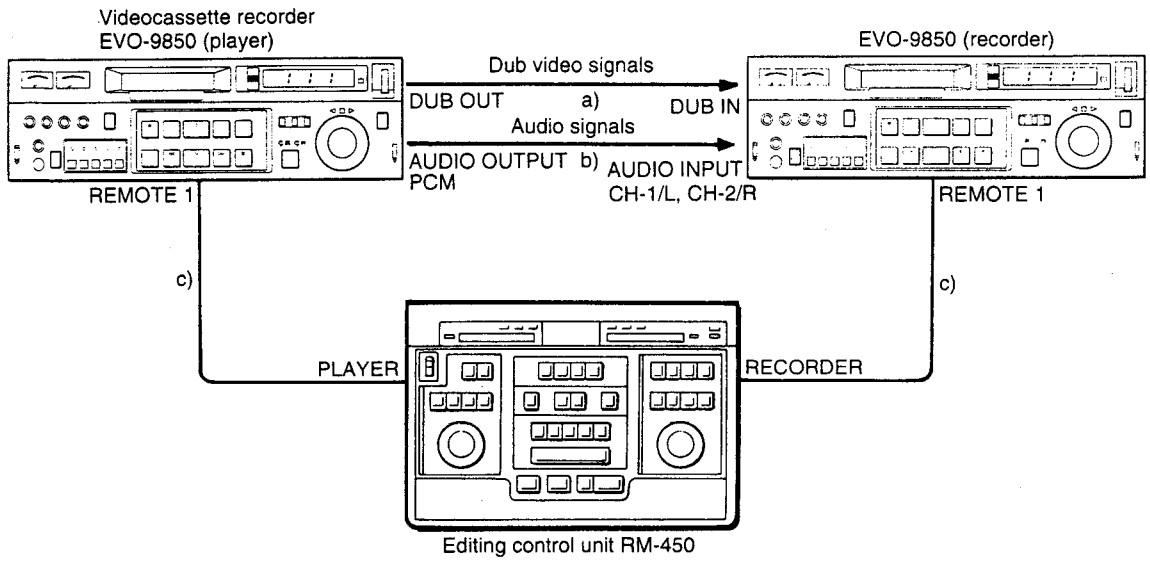


Manual editing system

EVO-9850 switch setting

INPUT SELECT switch → LINE
MODE SELECT switch → EDIT

Cut editing system 1 (EVO-9850 → EVO-9850)



a) 75-ohm coaxial cable with BNC connectors
b) Cannon EC-10XLR cables
c) 9-pin remote control cable RCC-5G/10G/30G (5 m/10 m/30 m)

Cut editing system 1

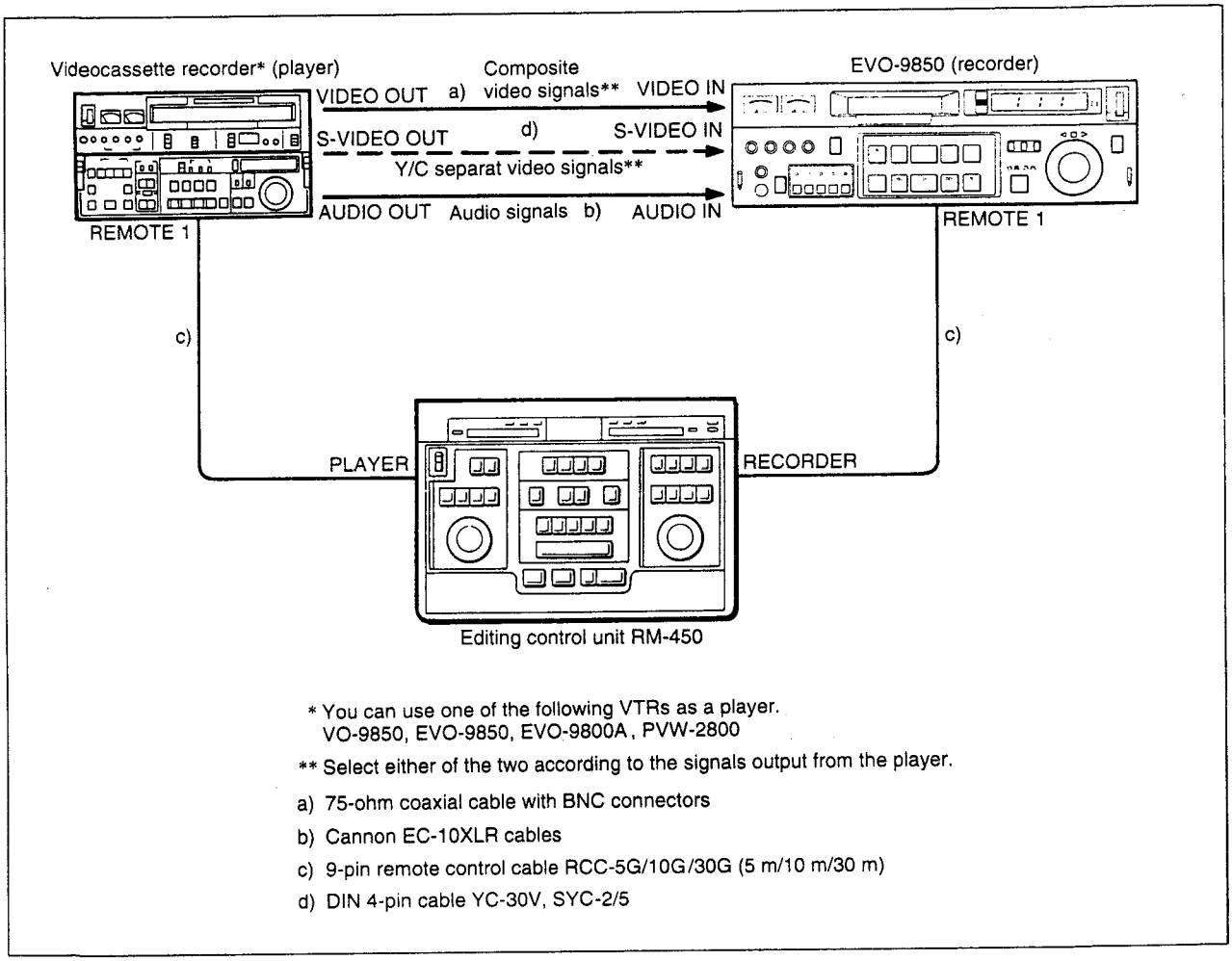
EVO-9850 switch settings (recorder)

INPUT SELECT switch → DUB
VIDEO PRCS switch → NORM
PCM/AFM INPUT SELECT switch → CH1/2
MIC/LINE switch → LINE
MODE SELECT switch → EDIT

EVO-9850 switch settings (player)

VIDEO PRCS switch → EDIT
DUB OUT switch → 8 mm
MODE SELECT switch → NORMAL

Cut editing system 2 (Hi8 VTR/Betacam VTR/U-matic VTR → EVO-9850)



* You can use one of the following VTRs as a player.
VO-9850, EVO-9850, EVO-9800A, PVW-2800

** Select either of the two according to the signals output from the player.

a) 75-ohm coaxial cable with BNC connectors

b) Cannon EC-10XLR cables

c) 9-pin remote control cable RCC-5G/10G/30G (5 m/10 m/30 m)

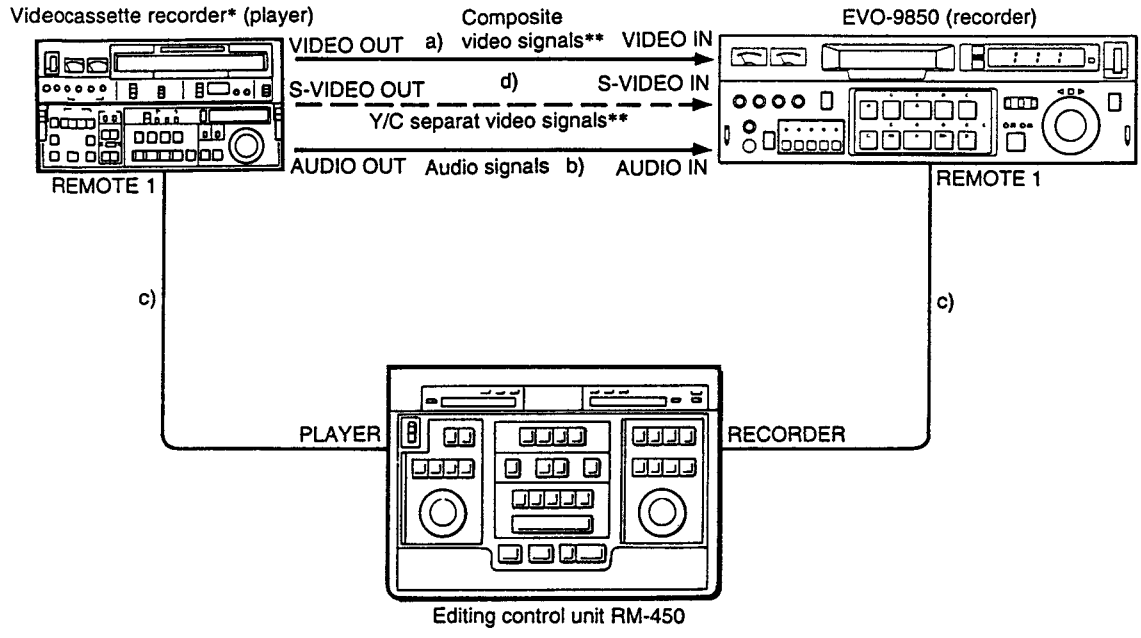
d) DIN 4-pin cable YC-30V, SYC-2/5

Cut editing system 2

EVO-9850 switch settings (recorder)

INPUT SELECT switch → LINE or S-VIDEO
VIDEO PRCS switch → NORM
MODE SELECT switch → EDIT
PCM/AFM INPUT SELECT switch →
PCM — CH1/2 or CH3/4
AFM — CH1/2 or CH3/4

Cut editing system 2 (Hi8 VTR/Betacam VTR/U-matic VTR → EVO-9850)



* You can use one of the following VTRs as a player.
VO-9850, EVO-9850, EVO-9800A, PVW-2800

** Select either of the two according to the signals output from the player.

a) 75-ohm coaxial cable with BNC connectors

b) Cannon EC-10XLR cables

c) 9-pin remote control cable RCC-5G/10G/30G (5 m/10 m/30 m)

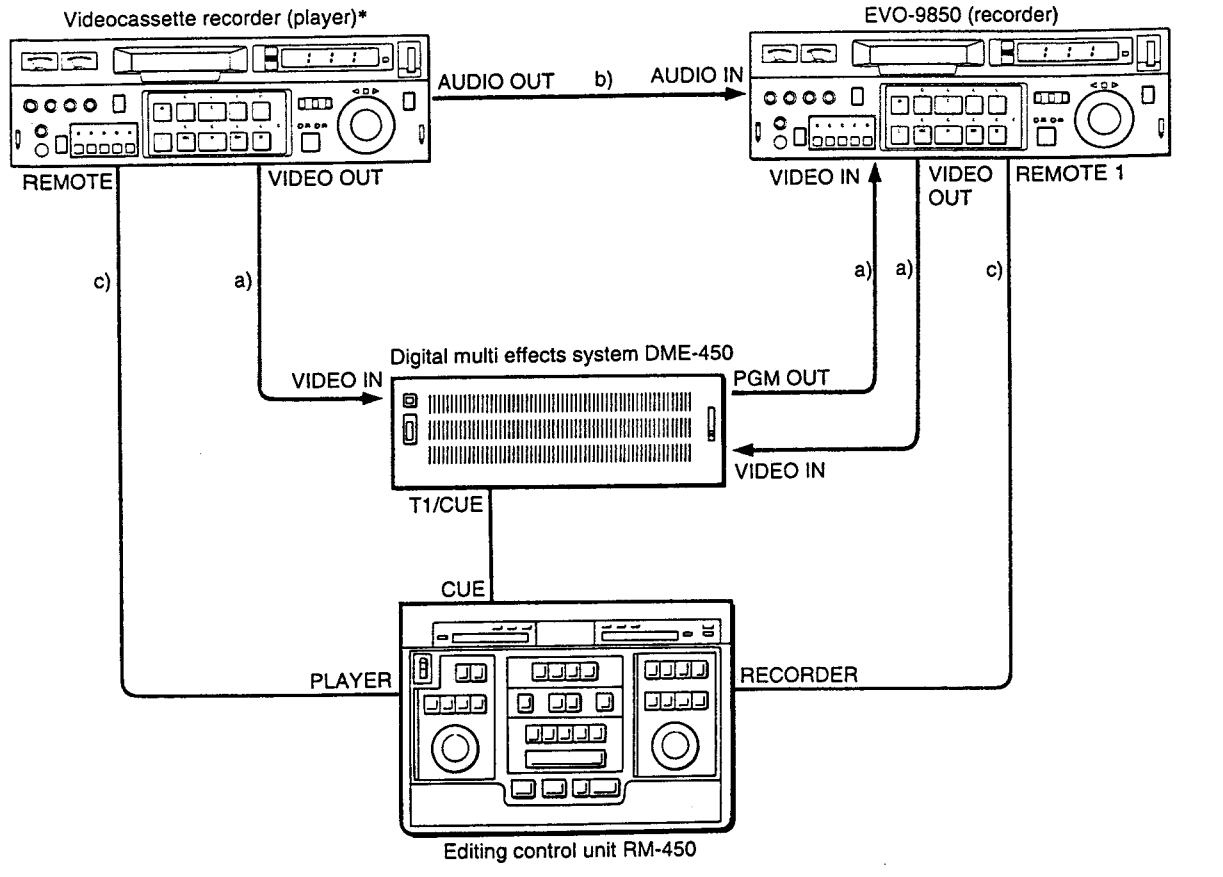
d) DIN 4-pin cable YC-30V, SYC-2/5

Cut editing system 2

EVO-9850 switch settings (recorder)

INPUT SELECT switch → LINE or S-VIDEO
VIDEO PRCS switch → NORM
MODE SELECT switch → EDIT
PCM/AFM INPUT SELECT switch →
PCM — CH1/2 or CH3/4
AFM — CH1/2 or CH3/4

Two-VTR editing system (Cut editing with digital multi effects)



* You can use one of the following VTRs as a player.
VO-9850, EVO-9850, EVO-9800A, PVW-2800

a) 75-ohm coaxial cable with BNC connectors

b) Cannon EC-10XLR cables

c) 9-pin remote control cable RCC-5G/10G/30G (5 m/10 m/30 m)

Two-VTR editing system

EVO-9850 switch settings (recorder)

INPUT SELECT switch → LINE
VIDEO PRCS switch → NORM
MODE SELECT switch → EDIT
PCM/AFM INPUT SELECT switch →
PCM — CH1/2 or CH3/4
AFM — CH1/2 or CH3/4

Reference Signal Connections

To obtain the required picture when you wish to connect two VTRs for editing, the VTRs and the editing control unit must be synchronized with each other. The time base correctors normally require an external reference signal. This unit contains a built-in sync signal generator, so that you can edit even in locations where an external reference signal is not available. The output from the sync signal generator is supplied to the unit's built-in time base corrector and to the servo circuits. The unit's reference signal is changed depending on the input signal and the setting of the MODE SELECT switch of the unit.

Sync system

The unit synchronizes with the external sync signal when the video signal is input from VIDEO IN, S-VIDEO IN or DUB IN connector or sync signal is input from REF VIDEO IN connector. The unit synchronizes with the internal sync signal generated by the built-in sync signal generator when neither external sync signal nor video signal is supplied. The reference signal is changed depending upon the setting of the MODE SELECT switch, input signals and the VTR operation mode.

Automatic selection of reference signal

VTR operation mode / MODE SELECT switch setting / Input signal		Recording	Playback	
		NORMAL EDIT	EDIT	NORMAL
Video signal	External sync signal			
Yes	Yes	Video	* External sync	External sync
Yes	No	Video	** Internal sync	Internal sync
No	Yes	External sync		
No	No	Internal sync		

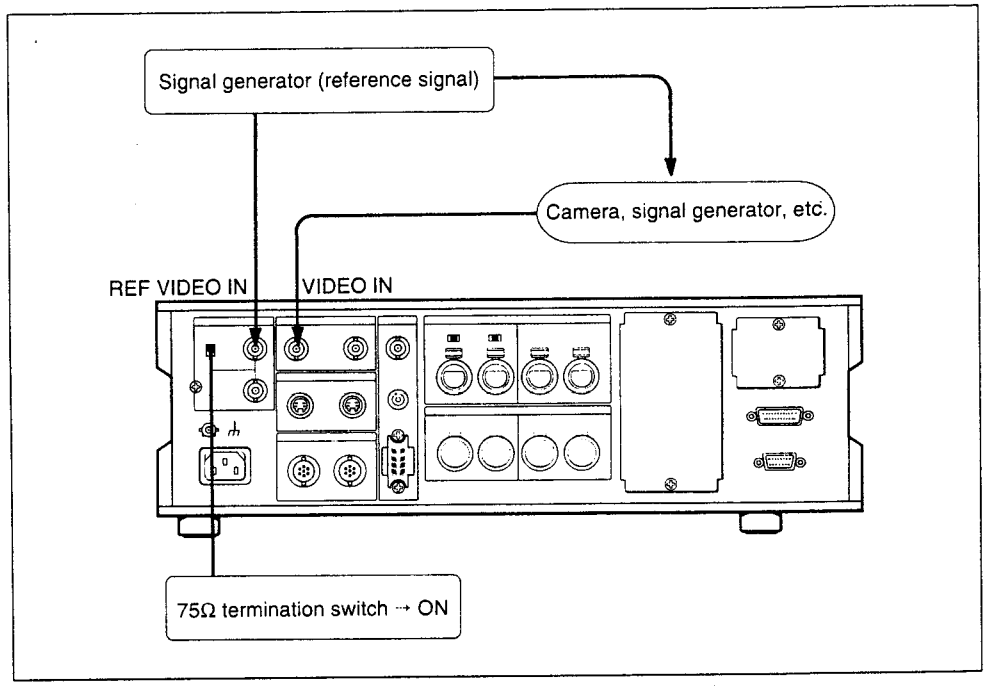
Note:

* When operating in this mode, it is required that tke Video Signal is locked to the External Sync Signal.

** In this mode, a reproduced picture may become unstable. It is required to feed an External Sync Signal or to change the mode from EDIT to NORMAL for correction.

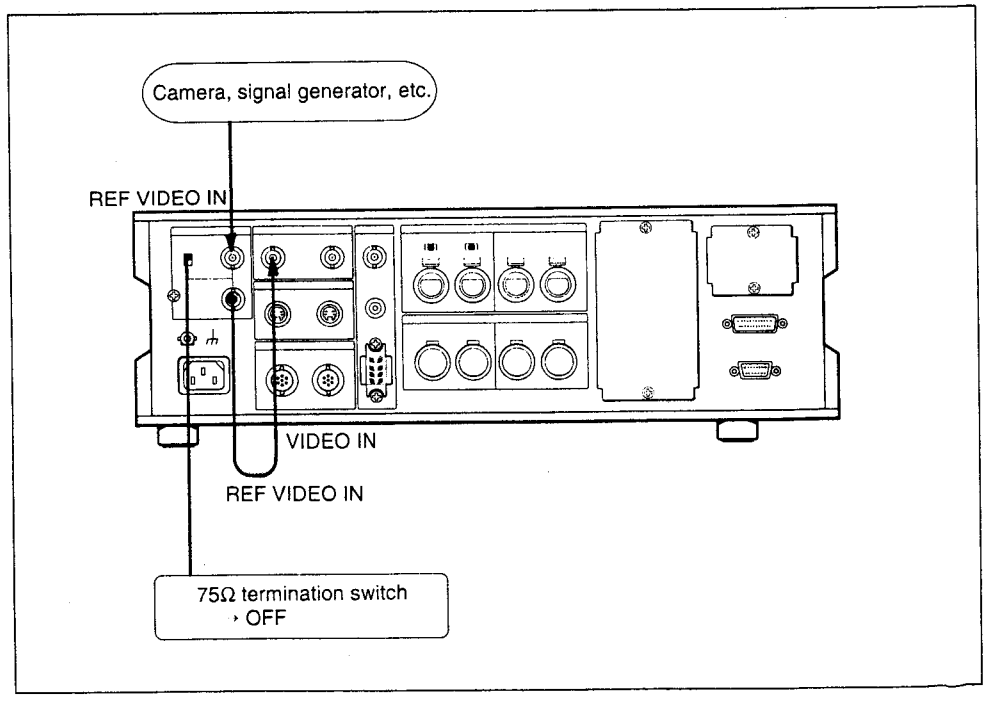
Recording from a camera, signal generator, etc.

Example 1: When sending the reference signal to both the VTR and a camera



Sending the reference signal to the VTR and camera

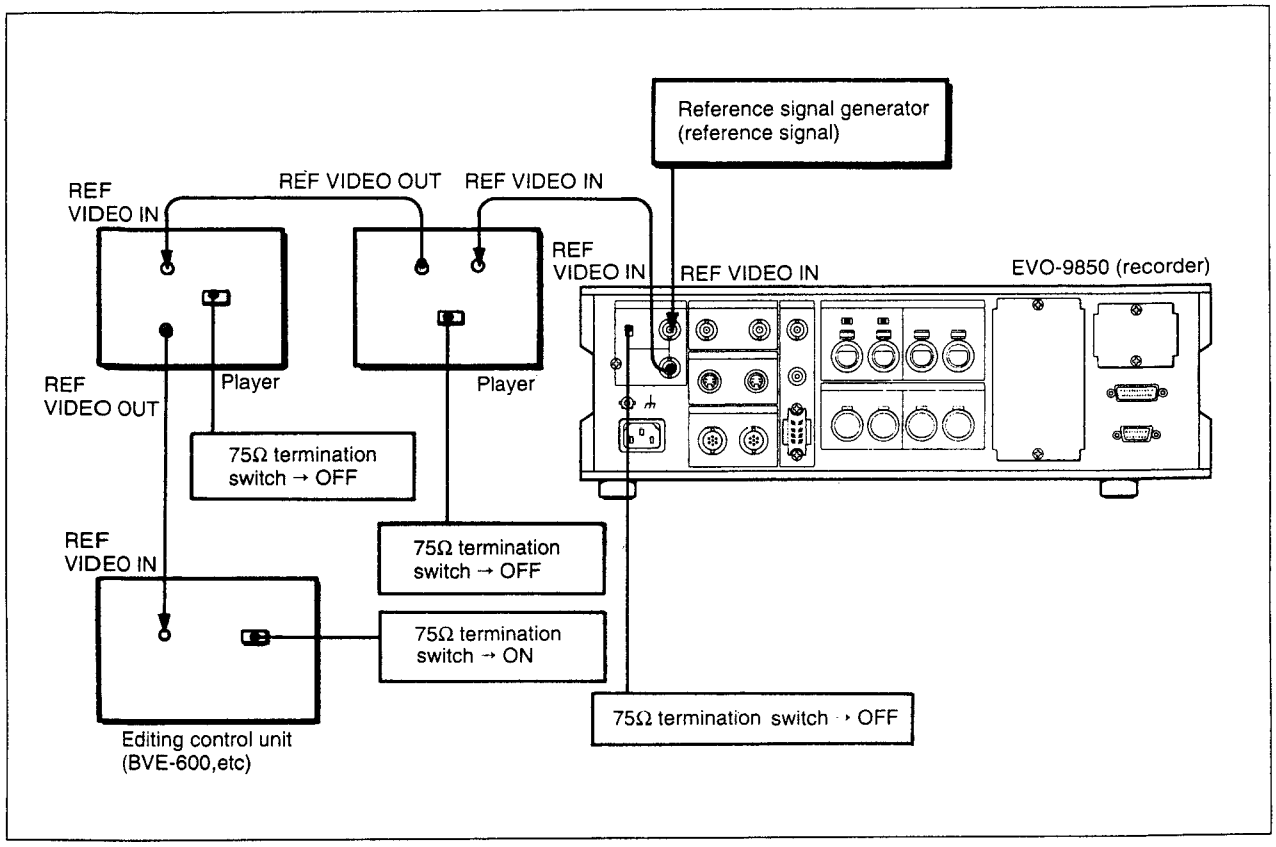
Example 2: When using the video signal from a camera and so on as a reference signal



Using the camera signal as the reference signal

Recording from a VTR

Example 3: A/B roll editing



Reference signal connection for A/B roll editing

1-4. CASSETTES

Please use the following 8-mm video system cassettes tapes and We highly recommend you use Hi8 cassettes tape for bussines use.

Hi8 cassettes for business use: E6-HMEX, P6-HMPX

The above cassettes are designed for business use and offer the best drop-out level.

Hi8 Cassettes: E6-HME, P6-HMP

Standard 8-mm cassettes: P6-MP series

We highly recommend you use P6-HMPX series tape for editing application because of durability. Don't use home-use 150 minutes cassettes tapes.

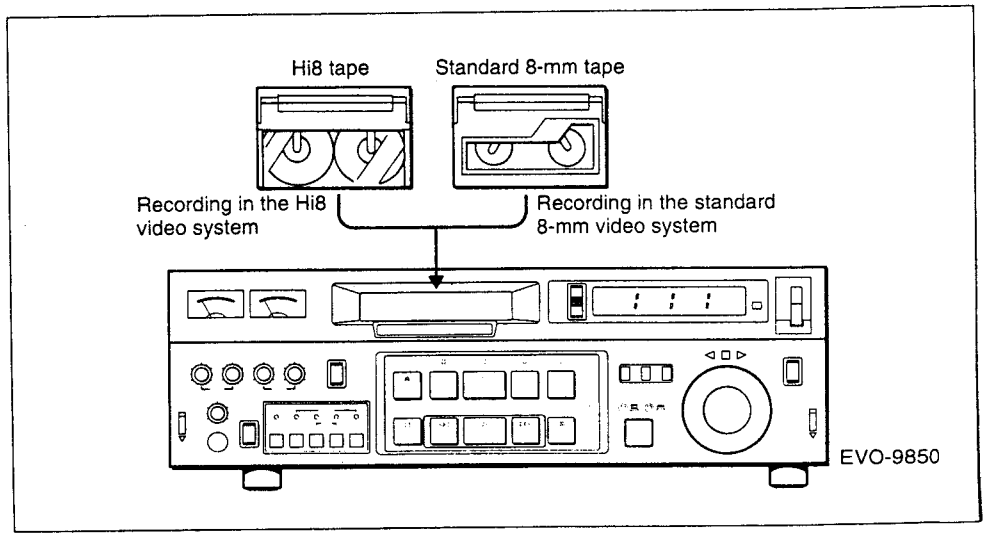
Cassettes and automatic switching of recording and playback

The unit differentiates between Hi8 cassettes and standard 8-mm cassettes by sensing the detection holes on the Hi8 cassettes. It automatically switches recording and playback mode as shown below.

Recording

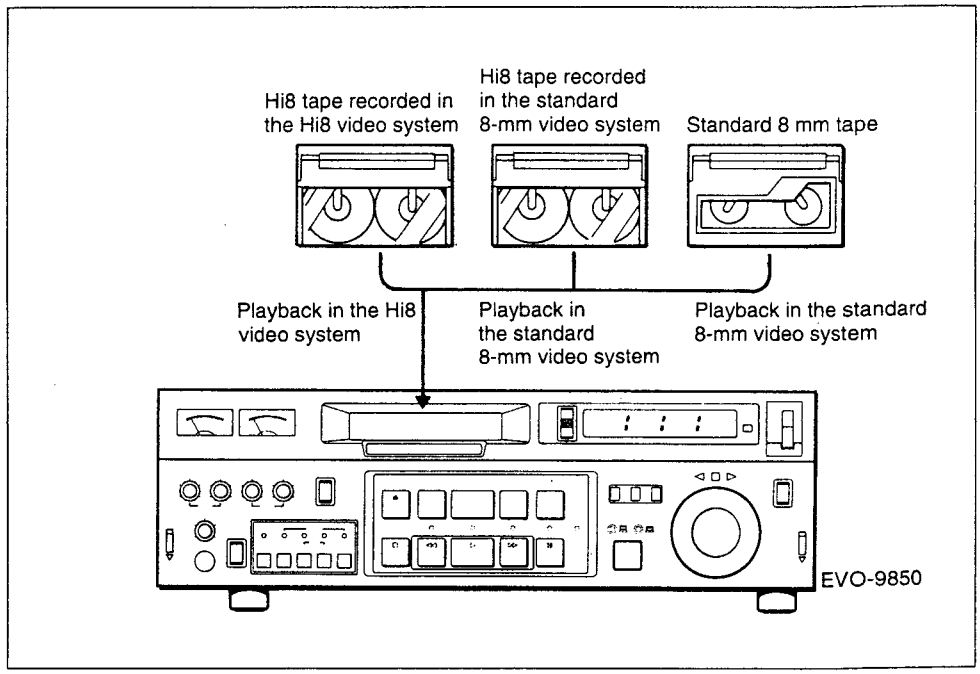
When you use a Hi8 cassette for recording, the unit senses the detection holes in the cassette shell, and automatically performs recording in SP (standard play) mode of the Hi8 video format.

When you use a standard 8-mm tape, the unit performs recording in the standard 8-mm video format.



Playback

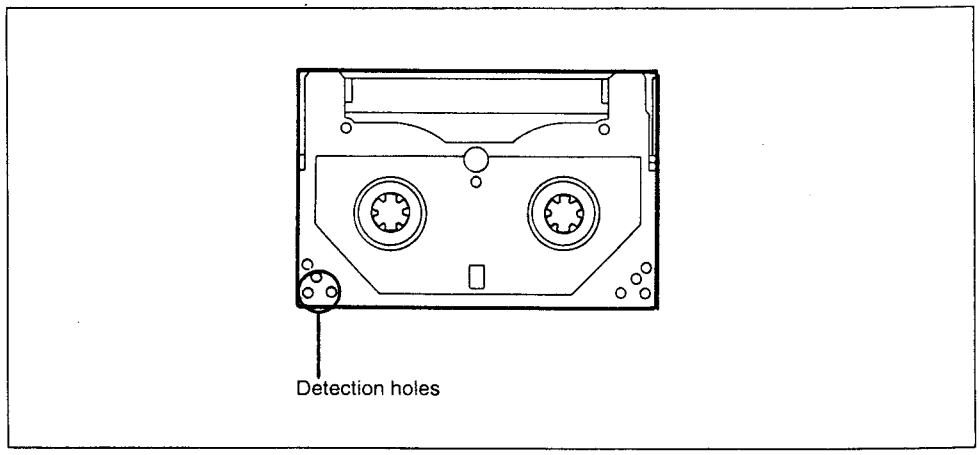
The unit detects the recording format by verifying the recording signal, and plays back the tape in the appropriate mode.


Hi8 tape recorded in the Hi8 video system
Hi8 tape recorded in the standard 8-mm video system
Standard 8 mm tape
Playback in the Hi8 video system
Playback in the standard 8-mm video system
Playback in the standard 8-mm video system
EVO-9850

The Hi8 indicator on the front panel lights when a tape recorded in Hi8 video format is played back.

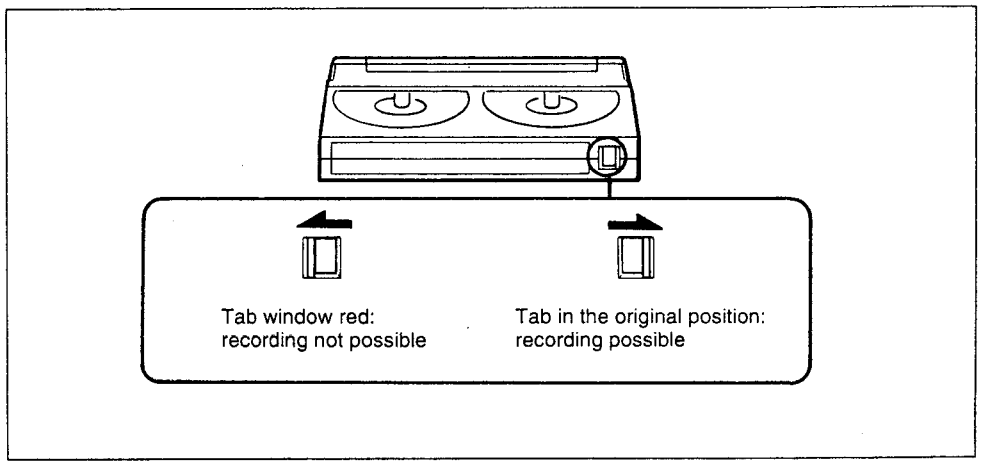
Hi8 cassettes

New Hi8 cassettes with high durability were specially developed for Hi8 video system recording/playback. They feature characteristics well suited the Hi8 video system. Hi8 cassettes feature a detection hole on the bottom of the cassette shell to automatically set Hi8 VTRs to Hi8 video format recording.



Preventing Accidental Erasure

When you record onto a recorded cassette, the previously recorded material is erased. If you want to safeguard the material recorded on a cassette, slide the tab on the rear of the cassette to the left, so that the tab window is red. Now, the cassette can not be used for recording, even if you press the REC button.

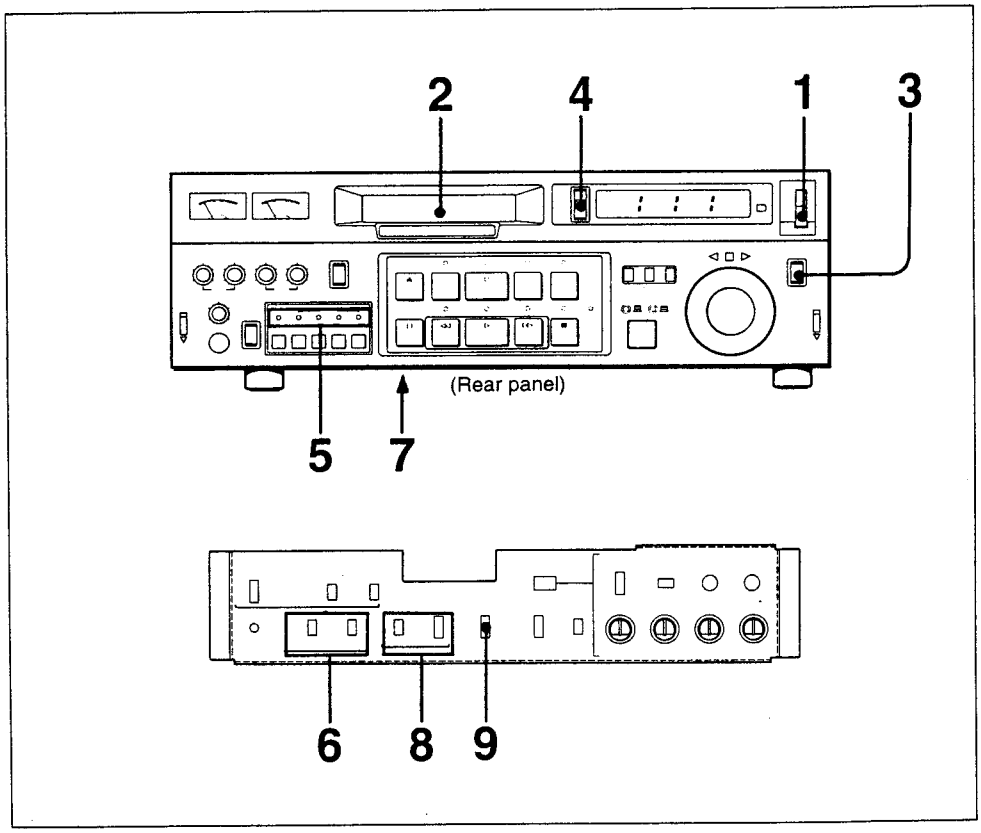


Preventing accidental erasure

When recording, check that the tab is set to the original position. If cassette that has its tab moved is inserted, a picture appears on the monitor in EE mode. However, the unit does not enter recording mode.

Preparing for Recording

Prepare to record as follows.



Preparing for recording

1 Set the POWER switch to ON.

2 Insert a cassette.
For details, see Chapter 3 "Inserting and Ejecting Cassettes" on page 3-25(E).

3 Set the REMOTE/LOCAL switch to LOCAL.

4 Set the time counter display switch to the time data you wish to display.
COUNTER: Displays the amount of tape travel in hours, minutes, seconds and frames.
Press the RESET button to reset the display to 0:00:00:00.
TC: Display the 8-mm time code.

5 Make sure that the following indicators are off.
- Indicator above the ASSEMBLE button
- Indicators above the INSERT buttons

6 Set the PCM/AFM INPUT SELECT switch to the audio signal you wish to record.
For details, see "Selecting the audio recording system" on page 1-31.

7 Set the MIC/LINE switch of the AUDIO INPUT CH-1/L CH-2/R connectors to the audio signal you wish to input.

MIC: Set the switch to this position to record the audio signal from the microphone connected to the AUDIO INPUT CH-1/L CH-2/R connectors.

LINE: Set the switch to this position to record the audio signal from a VTR player or audio equipment.

8 Set the MONITOR SELECT switch to the audio signal you wish to monitor.
For details, see "Selecting audio input signal to monitor" on page 1-33.

9 Set the INPUT SELECT switch to the video signal you wish to record as follows.

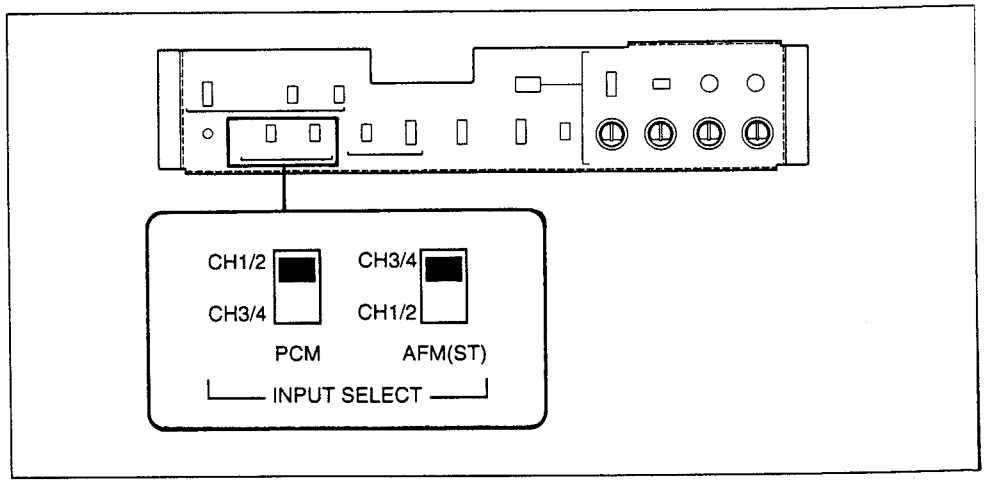
Input signal	Input connector	Switch setting
Composite video	VIDEO IN	LINE
Separate Y and C signals	S-VIDEO IN	S-VIDEO
Dub video signal for 8-mm VTR	DUB IN (8 mm)	DUB

Selecting the audio recording system

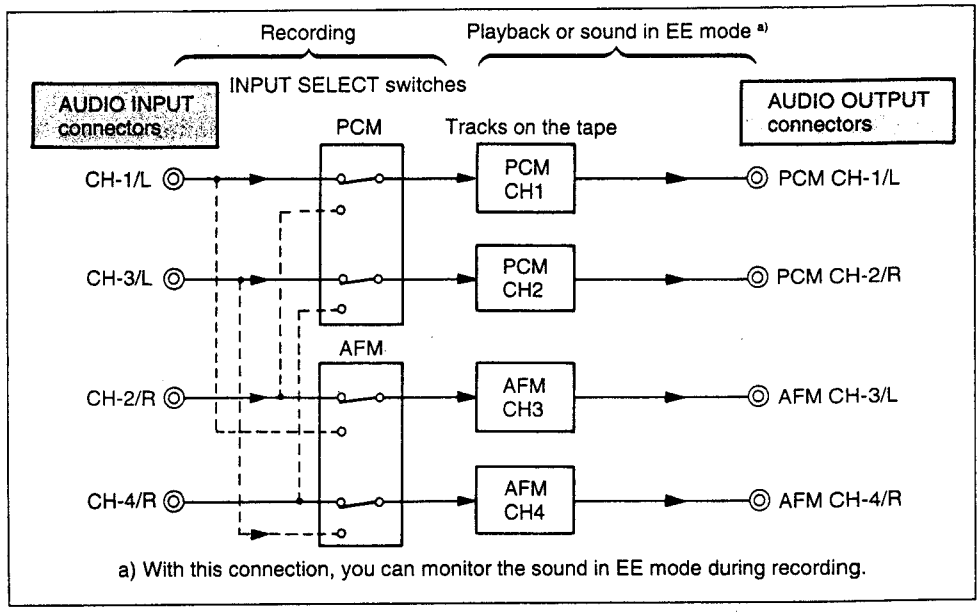
Audio signals can be recorded using either of two systems; matrix-stereo AFM recording and 2-channel PCM recording.
You can select which input audio signal is to be recorded with which recording system. You can also record a single audio input signal source with two different recording systems.
How to select the audio track to be recorded is explained below, with an example. The diagram below also shows the signal flow.

Example: To record two audio input signal sources with the AFM and PCM recording systems.

Set the PCM/AFM INPUT SELECT switch as shown below to record the audio signal input to AUDIO INPUT CH-1/L, CH-2/R with the PCM recording method and the audio signal input to AUDIO INPUT CH-3/L, CH-4/R with the AFM recording method.



PCM/AFM INPUT SELECT switch settings



Audio signal flow

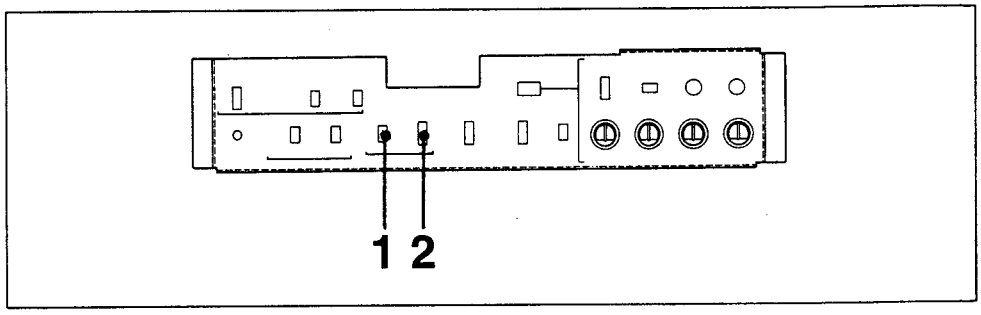
Recording audio from microphones

Connect microphones to the AUDIO INPUT CH-1/L and CH-2/R connectors. Set the MIC/LINE switch to MIC.

For an explanation of setting the PCM/AFM INPUT SELECT switch, see the above example.

Selecting the audio signal to monitor

You can monitor monaural sound through headphones or monitor's speakers while recording. Select the audio signal to monitor with the MONITOR SELECT switches.



Selecting the audio signal to monitor

1 Set the PCM/AFM switch of MONITOR SELECT to the recording system of the audio you wish to monitor.

PCM: Set the switch to this position to monitor the audio signal recorded on the PCM tracks.

AFM: Set the switch to this position to monitor the audio signal recorded on the AFM channels.

2 Set the CH-1/MIX/CH-2 switch to the channel you wish to monitor.

Switch setting	Audio signal output from PHONES, MONITOR TV and MONITOR AUDIO connectors	
	When you set the switch to PCM	When you set the switch to AFM
CH-1	Audio signal recorded on PCM track 1	Audio signal recorded on AFM left channel
MIX	Mixed audio signals from PCM tracks 1 and 2	Mixed audio signals from AFM left and right channels.
CH-2	Audio signals recorded on PCM track 2	Audio signals recorded on AFM right channel

Note

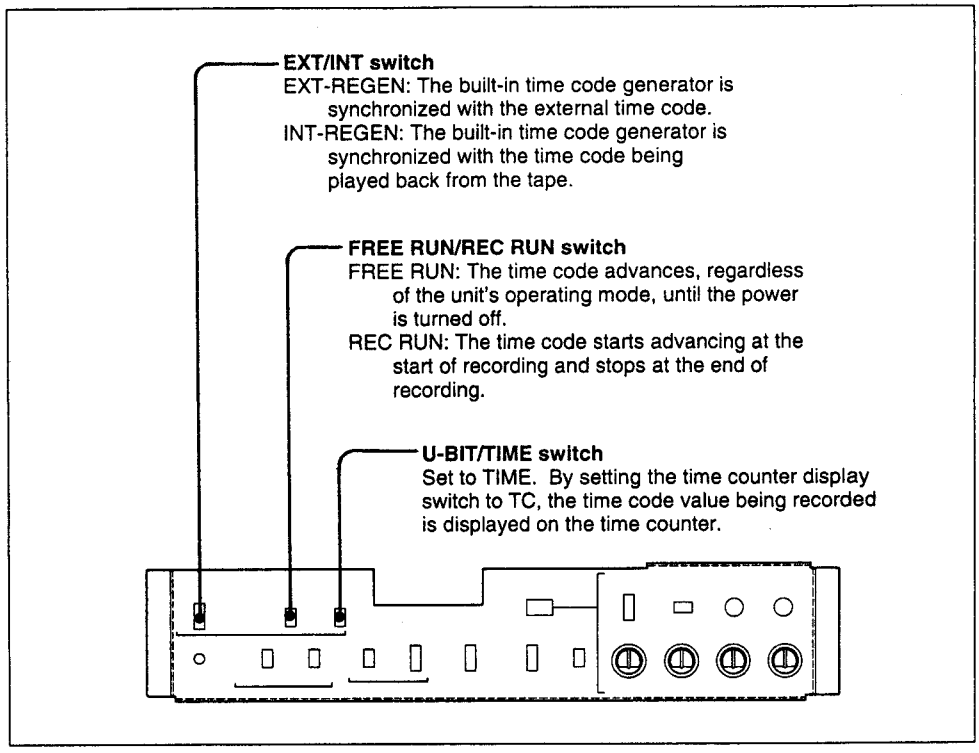
The audio signal from the AUDIO OUTPUT connectors is not affected by the setting of the MONITOR SELECT switches.

The AUDIO OUTPUT PCM CH-1/L and CH-2/R connectors output the audio signals recorded on PCM tracks 1 and 2, respectively.

The AUDIO OUTPUT AFM CH-3/L and CH-4/R connectors output the audio signals recorded on the AFM left and right channels, respectively.

Switch settings for recording 8-mm time code

The 8-mm time code is recorded simultaneously with the video and audio signals. To record the 8-mm time code with the video and audio signals or to record the 8-mm time code onto the tape onto which the video and audio signals have already been recorded, set the switches on the sub-panel as follows. This switch setting enables the recording of 8-mm time codes during editing.
To manipulate the switches on the sub-panel, raise the lower control panel to the horizontal position.


EXT/INT switch
EXT-REGEN: The built-in time code generator is synchronized with the external time code.
INT-REGEN: The built-in time code generator is synchronized with the time code being played back from the tape.
FREE RUN/REC RUN switch
FREE RUN: The time code advances, regardless of the unit's operating mode, until the power is turned off.
REC RUN: The time code starts advancing at the start of recording and stops at the end of recording.
U-BIT/TIME switch
Set to TIME. By setting the time counter display switch to TC, the time code value being recorded is displayed on the time counter.

Switch settings for recording an 8-mm time code

Time code data can be set by the dial menu operation.
For details, see Chapter 2 "System Setup from Menu".

To set the user bits

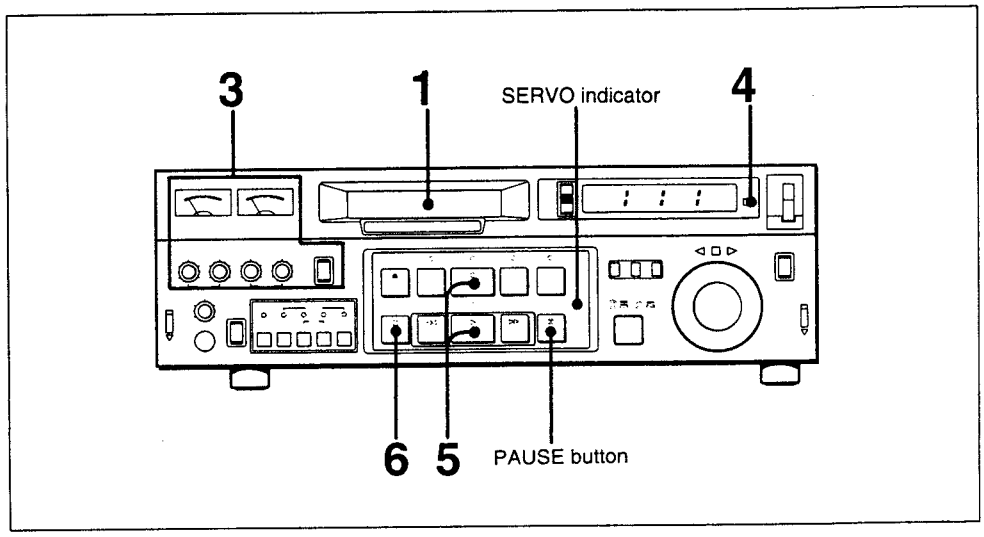
You can set the user bits using the basic menu function and also record the user bits to the tape.
For details, see Chapter 2 "System Setup from Menu".

To use the external time code

You can use the external time code input to the TIME CODE connectors by installing the EVBK-100 SMPTE time code interface kit (not supplied).

Recording Video and Audio Signals

Record video and audio signals as follows.



Recording video and audio signals

1 Insert the cassette, making sure that the tab on the rear of the cassette is in its original position and that the tab window is not red.

2 Prepare the program to be recorded.
To record a signal from another VTR: Set the other VTR to playback mode.
To record a signal from a video camera: Adjust the video camera.
The picture, in EE mode, appears on the monitor.

3 Adjust the audio recording level.
For details, see "Adjusting the audio recording level" on page 1-36(E).

4 Press the RESET button when the time counter display switch is set to COUNTER.
The value on the time counter display becomes "0:00:00:00".

5 While holding down the REC button, press the PLAY button to begin recording.
The SERVO indicator lights once the head rotation and tape speed stabilize.

6 Press the STOP button to stop recording.
The unit stops recording and the STOP indicator lights.
If recording continues to the end of the tape, the tape automatically rewinds to the beginning and then stops.

Adjusting the audio recording level

Adjust the audio recording level for each recording system and each channel by using the AUDIO LEVEL controls.

1 Set the METER SELECT switch to the recording system you wish to adjust.

PCM: Set the switch to this position to adjust the recording level of the audio signal to be recorded onto the PCM tracks.

AFM: Set the switch to this position to adjust the recording level of the audio signal to be recorded onto the AFM channels.

2 Adjust the audio signals of each channel by using the AUDIO LEVEL controls.

CH-1/3: Adjusts the recording level of the audio signal input to the AUDIO INPUT CH-1/L or CH-3/L connectors.

CH-2/4: Adjusts the recording level of the audio signal input to the AUDIO INPUT CH-2/R or CH-4/R connectors.

Adjust the AUDIO LEVEL controls such that the pointer of the level meter approaches 0 VU at maximum input level.

To stop the tape momentarily

Press the PAUSE button. To resume recording, press the PAUSE button again.

Long pause mode

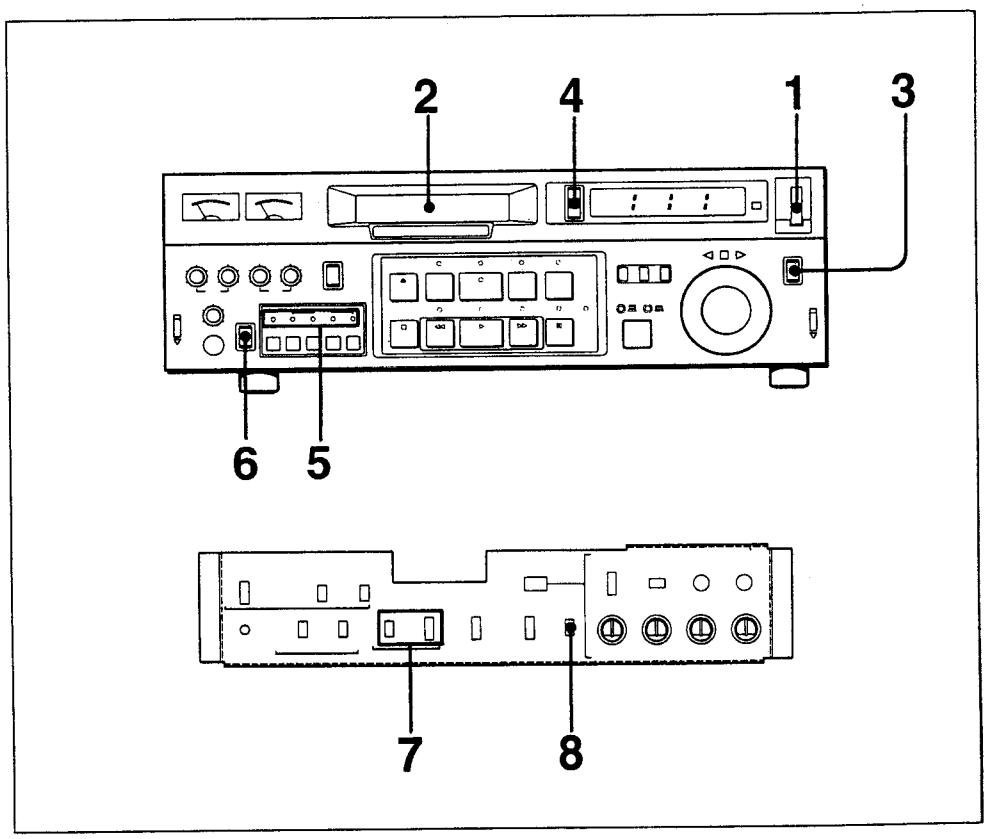
If recording pause mode continues for about 8 minutes, the tape around the head drum is automatically slackened to protect the video head and the tape. Hence, the still picture will disappear. This is called "long pause mode". To release the long pause mode, press the PAUSE button.

The time to enter tape protection mode can be set between 0.5 seconds and 8 minutes by using the dial menu 207. For details, see chapter 2.

1-6. PLAY BACK

Preparing for Playback

Prepare to play back as follows.



Preparing for playback

1 Set the POWER switch to ON.

2 Insert a cassette.

3 Set the REMOTE/LOCAL switch to LOCAL.

4 Set the time counter display switch to the time data you wish to display.

COUNTER: Displays the amount of tape travel in hours, minutes, seconds and frames.
Press the RESET button to reset the display to 0:00:00:00.

TC: Display the 8-mm time code or user bits.

The display of the 8-mm time code or user bits is determined by setting of the U-BIT/TIME switch of the sub-panel.
The same data as that displayed on the time counter can be superimposed on the monitor screen by setting with the basic menu function.

For details, see chapter 2 "System Setup from Menu".

5 Ensure that the following indicators are off.
- Indicator above the ASSEMBLE button
- Indicators above the INSERT buttons.

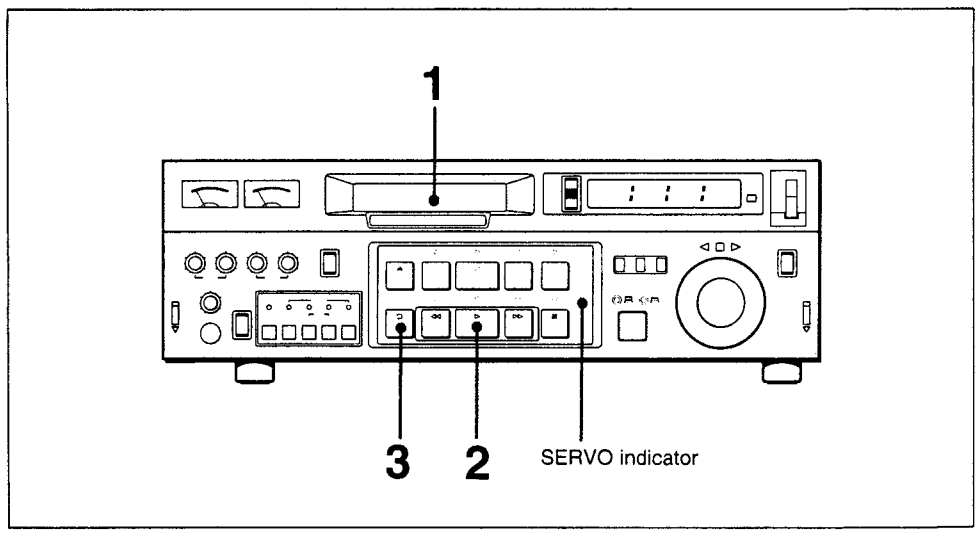
6 Set the MODE SELECT switch to NORMAL.

7 Set the MONITOR SELECT switch to the audio signal you wish to monitor.
For details, see "Selecting audio input signal to monitor" on page 1-33.

8 Set the VIDEO PRCS switch to NORM.

Normal Speed Playback

To play back video and audio signals at normal speed, proceed as follows.



Normal speed playback

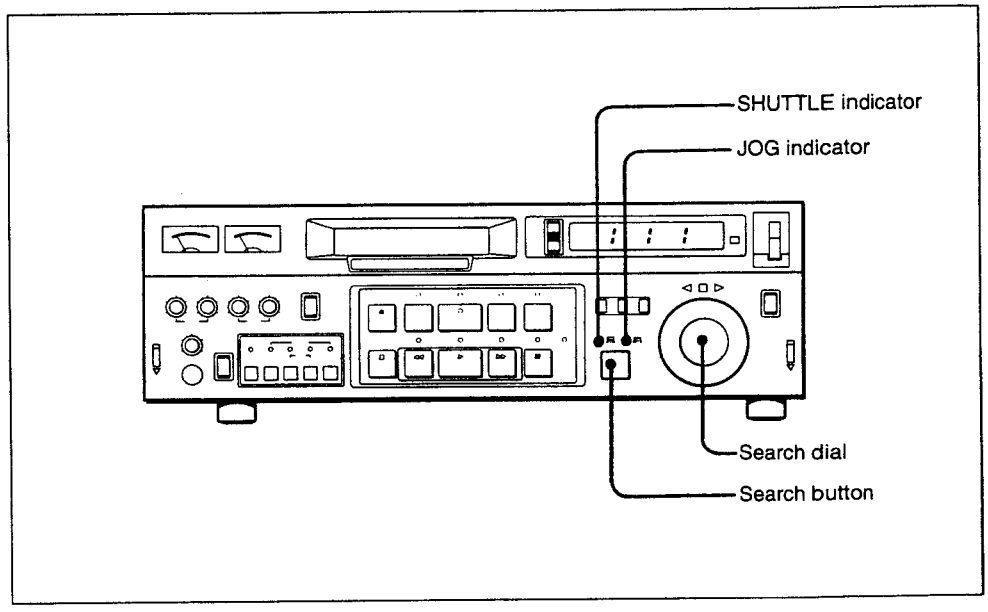
1 Insert a cassette.

2 Press the PLAY button.
Playback starts. The servo indicator lights when the head rotation and tape speed stabilize.

3 Press the STOP button to halt playback.
If played to its end, the tape is automatically rewound to the beginning and then stops.

JOG and SHUTTLE Mode Playback

JOG and SHUTTLE are variable speed playback modes. Rotate the search dial to set the speed.



Variable speed playback (JOG and SHUTTLE mode)

Press the dial to toggle between JOG and SHUTTLE modes. The current mode is indicated by the JOG and SHUTTLE indicators.

JOG mode (JOG indicator lit): Speed varies between 0 and ±1 times normal speed, corresponding to the rotation speed of the search dial. Use this mode to search for a desired point precisely.

SHUTTLE mode (SHUTTLE indicator lit): Speed varies between ±1/20 and 17 times normal speed, corresponding to the angle of rotation of the search dial. Use this mode to make a rough search for a desired position.

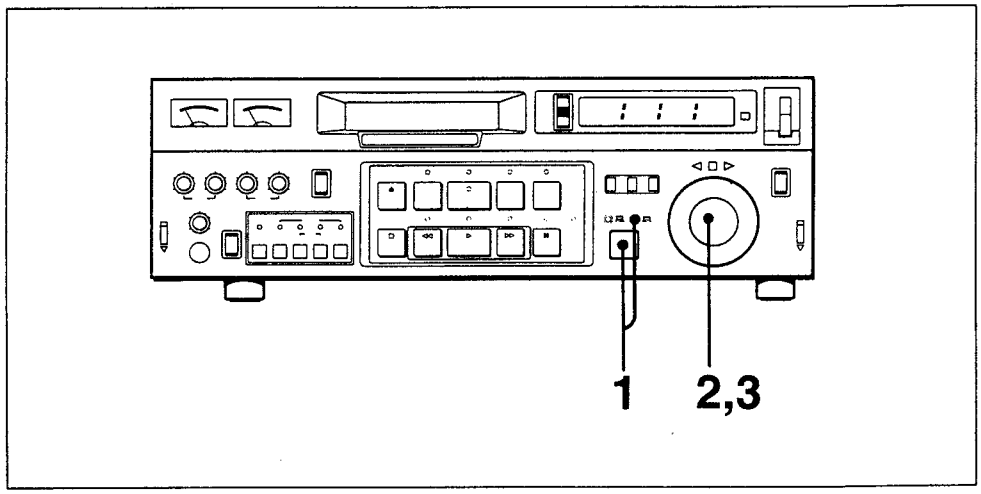
Tape protection mode

If the pause mode is held for about 8 minutes in search mode, the tape is advanced by several frames. If the pause mode continues to be held, this will occur every 8 minutes.

The time to enter tape protection mode can be set between 0.5 seconds and 8 minutes by using the dial menu 207. For details, see chapter 2.

JOG mode playback

To playback in JOG mode, follow the procedure below.



JOG mode playback

1 Press the search button to enter search mode.
The SHUTTLE or JOG indicator lights.
When the JOG indicator is not lit, press the search dial to light the JOG indicator.
The monitor shows a still picture and the still □ indicator lights.

2 Rotate the search dial at the desired speed.
Slow-motion playback starts, at a speed corresponding to the rotational speed of the search dial. The direction indicator (◁ or ▷) indicates the direction of playback.

3 To stop JOG mode playback, stop turning the search dial.
The tape stops and the □ lamp lights, and the monitor shows a still picture.

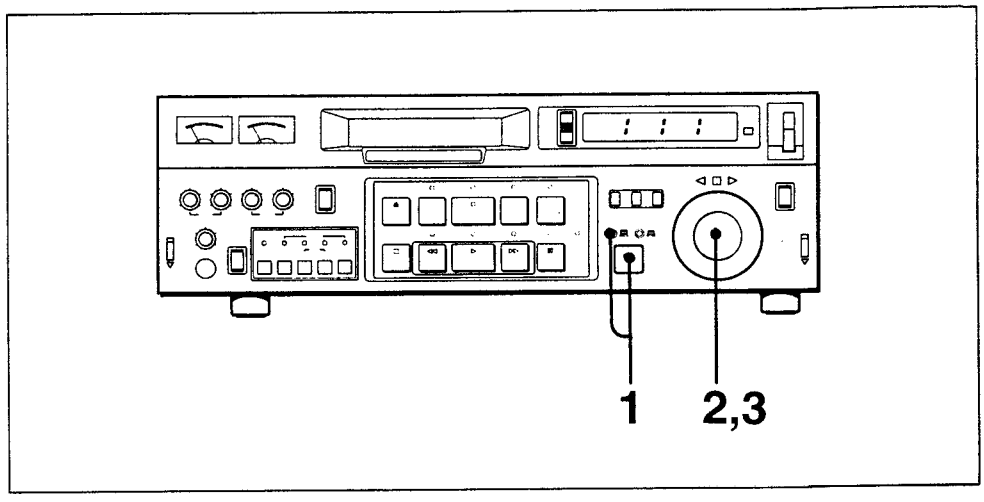
To terminate JOG mode playback

Press one of the PLAY, REW, F FWD or STOP button.

Audio monitoring in JOG mode playback

You can monitor the audio recorded on the PCM tracks during JOG playback.

SHUTTLE mode playback



SHUTTLE mode playback

1 Press the search button to enter search mode.
The SHUTTLE or JOG indicator lights.
When the SHUTTLE indicator is not lit, press the search dial to light the SHUTTLE indicator.
The monitor shows a still picture and the still □ indicator lights.

2 Turn the search dial to the angle for the desired speed.
The dial has a detent at the center position, corresponding to a speed of 0.
Playback begins at the desired speed. The direction indicator (◁ or ▷) indicates the direction of playback.

3 To stop SHUTTLE mode playback, return the search dial to the center position.
The tape stops momentarily, the □ lamp lights, and the monitor shows a still picture.

To terminate SHUTTLE mode playback

Press one of the PLAY, REW, F FWD or STOP button.

Using the search button

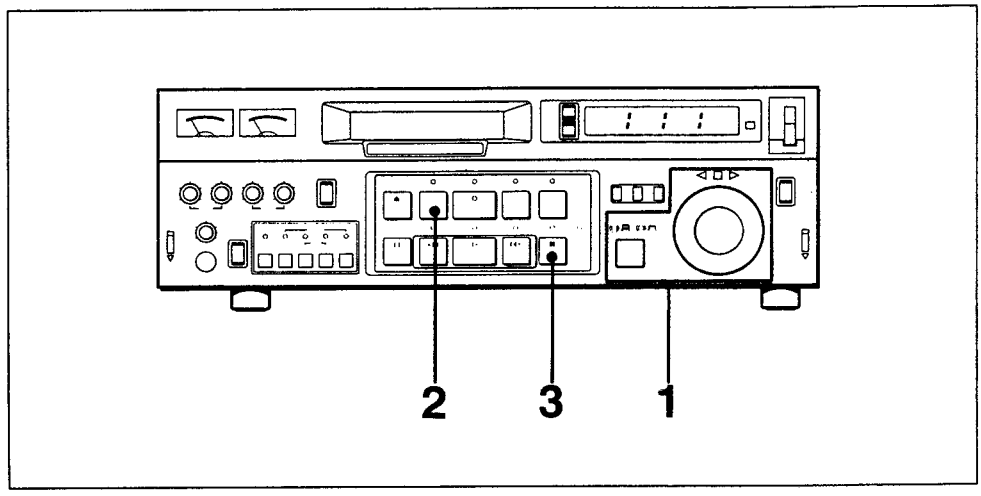
In SHUTTLE mode, you can use the search button as follows. Pressing the PLAY button alternately with the search button plays the tape at normal speed then at the speed selected with the search dial. Pressing the STOP button alternately with the search button alternately stops and starts playback at the selected speed.

Audio monitoring in SHUTTLE mode playback

You can monitor the audio recorded on the PCM tracks during SHUTTLE playback.

Starting playback at a desired time

To start playback at a desired time by using the PREROLL button, proceed as follows.



Playback using the PREROLL button

1 Search for the point from which to start the playback, then stop the tape.
Use the search dial to make a quick and exact search.
For details, see the explanation of "JOG and SHUTTLE Mode Playback" on page 4-12(E).

2 Press the PREROLL button.
The tape is rewound by five seconds, then stops in pause mode.

3 Press the PAUSE button exactly five seconds before you want to start playback.
The tape starts running. The tape transport will have stabilized at the desired time.

Obtaining stable video signals for the best possible playback picture

The unit has a built-in time base corrector to adjust for timing irregularities. Thus, the unit can supply stable video signals directly to all kinds of video equipment. You can adjust the phase and amplitude of the output signals by using the controls for TBC on the sub-panel, so that the unit can output a stable video signal synchronized with an external reference signal.
By connecting the BVR-55 TBC remote control unit (not supplied) to the TBC REMOTE connector on the rear panel, you can perform remote adjustment.
For information on the functions of the TBC controls, see the explanation on page 1-12.

1-7. EDITING

Videotape editing is the process in which selected scenes from a tape containing original material are arranged into sequences and combined with sound effects or background music to create the final program. In electronic editing, scenes from the playback and recorder VTRs are linked electronically, allowing the editor to adjust the entry and exit points until the result is satisfactory, executing the final recording automatically.
By connecting the EVO-9850 to an input source (video and audio source), you can perform manual editing using the PREROLL button. Also, you can perform automatic editing by using the unit with other VTRs and a Sony editing control unit such as the RM-450 or BVE-600. In addition, including the Sony DME-450 digital multi effects system in the system enables you to perform electronic editing with digital multi effects.

1-7-1. Selecting Editing Mode

Editing modes

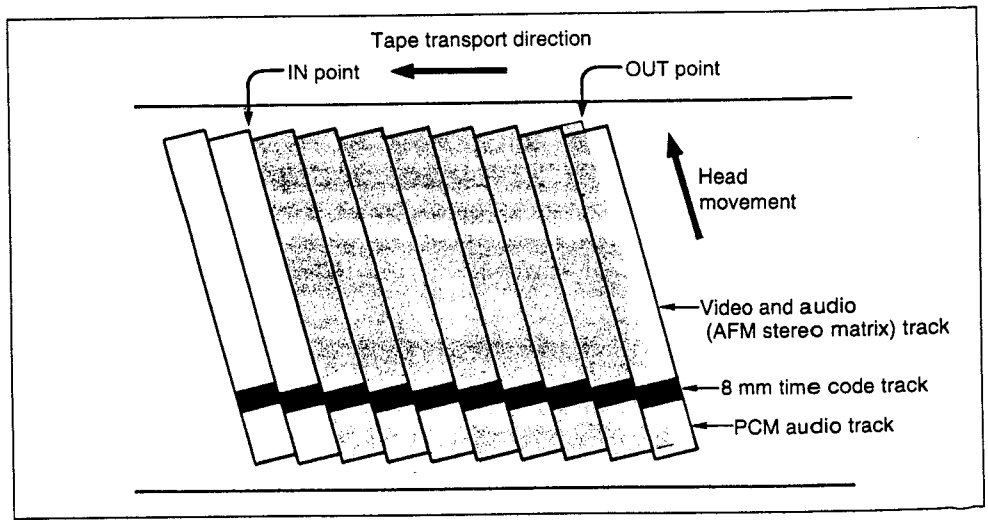
The unit gives you a choice of two editing modes: assemble mode and insert mode.

Assemble mode

New scenes are added to the end of existing recorded scenes. Video signal with the AFM audio signals, 2-channel PCM audio signals and 8-mm time codes are transferred at the same time.

Notes

- Use the assemble mode when using a new tape or if you wish to record onto a tape on which signals are not recorded continuously.
- In assemble mode, recording continues for a certain distance beyond the edit out point. This means that previously recorded information beyond the edit out point will be erased. Use the insert mode if you wish to insert material into a prerecorded tape.



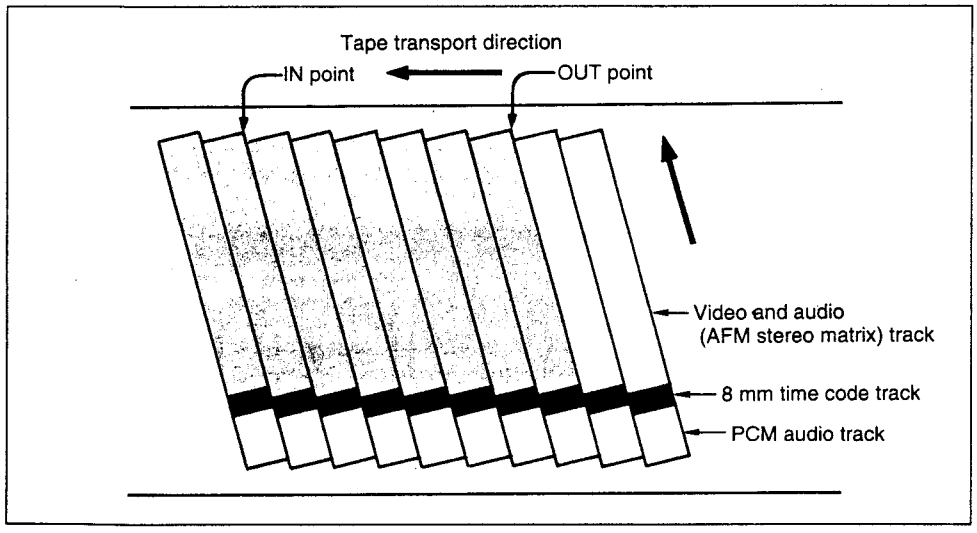
Tape pattern in assemble mode edit

Insert mode

A segment of new material is inserted into the tape at a predetermined point. Video signal with AFM audio signals, PCM audio signals and 8-mm time codes can be transferred separately or at the same time. Insert mode editing is a convenient way of replacing the video or audio contents of a certain segment of the tape, or to add narration or background music to previously recorded material.

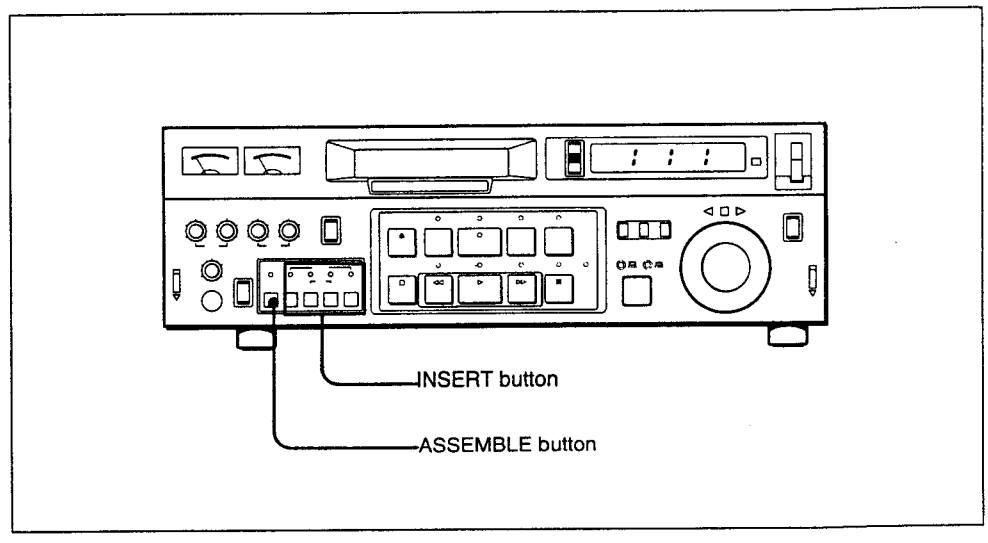
Notes

- AFM audio signals are recorded on the same track as the video signal. Thus, you cannot record the video signal and AFM audio signals separately.
- When recording the PCM audio signals or 8-mm time code in insert mode, the noise may appear on the played-back picture or AFM sound. This is not trouble. Video signals and AFM audio signals are maintained as they were.



Tape pattern when inserting the video signal with AFM audio signal only

Selecting edit mode



Controls for selecting edit mode

To edit in assemble mode

Press the ASSEMBLE button.

To edit in insert mode

Press one or more of the INSERT buttons—VIDEO, PCM CH-1, PCM CH-2 and TIME CODE—to select the input signals to be recorded.

1-7-2. Automatic Editing

You can perform automatic editing by setting up a system with other VTRs and a Sony editing control unit such as the RM-450 or BVE-600. In addition, by adding the Sony DME-450 digital multi effects system to the system, you can perform electronic editing combined with special effects. In this case, you must use two or more VTRs. The EVO-9850 is used as the recorder in the system. As the player VTRs, you can use another Hi8 VTR, Betacam SP VTR, or U-matic VTR.

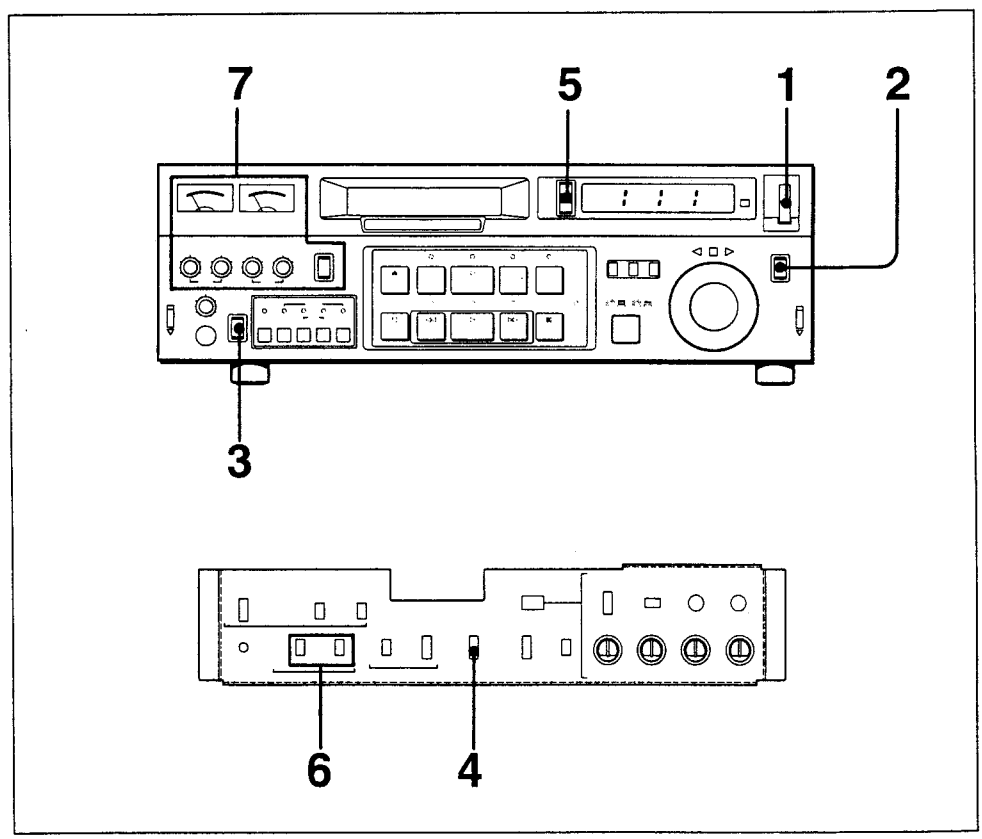
For details of system connection, see "Editing System Connections" on page 1-21.
For details of reference signal connection, see "Reference Signal Connections" on page 1-24.

Before Starting

During automatic editing with the RM-450 and two VTRs, the RM-450 remotely controls the two VTRs. On the EVO-9850, you can only turn the power on or off, select the input signal and adjust the audio signals. All editing operations are performed from editing control unit.

Switch settings and adjustment for a recorder

To use the unit as a recorder, make the following settings.



.Setting and adjustment to use the unit as a recorder

1 Set the POWER switch to ON.

2 Set the REMOTE/LOCAL switch to REMOTE.

3 Set the MODE SELECT switch to EDIT.

4 Select the input signal with the INPUT SELECT switch.

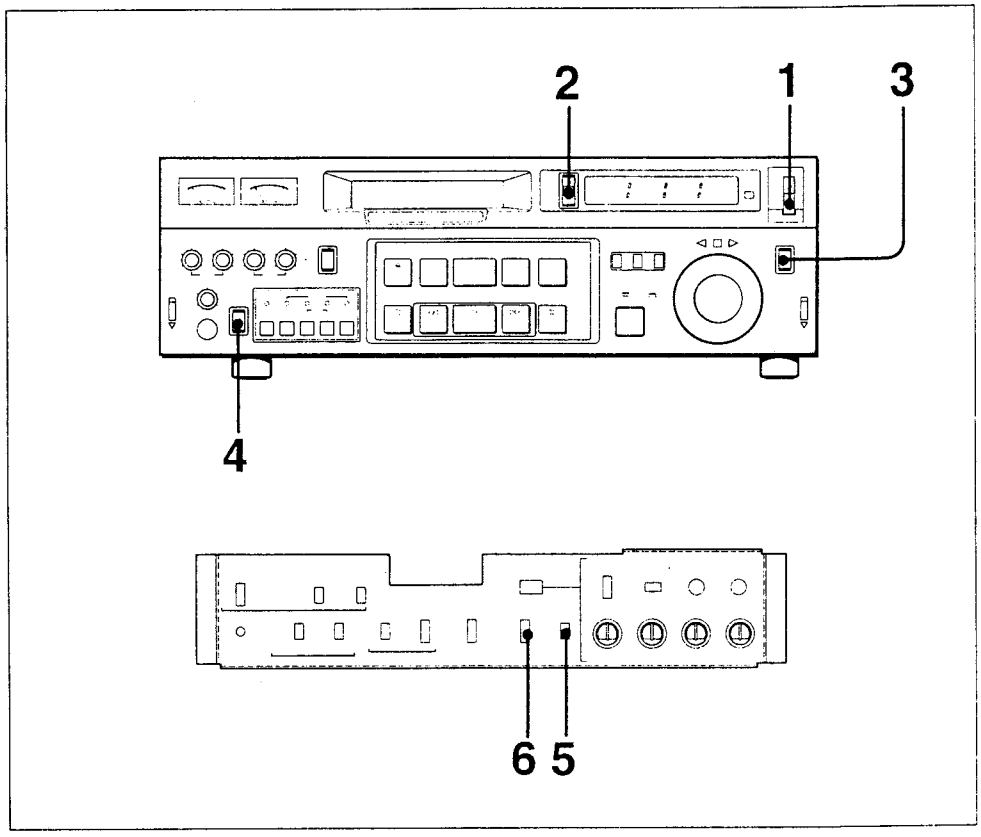
5 Set the time counter display switch to COUNTER or TC.

6 Select the audio track to record with the PCM/AFM INPUT SELECT switches.
For information on selecting the audio track, see "Selecting the audio recording system" on page 1-31.

7 While playing the tape back on the player, adjust the audio recording level with the AUDIO LEVEL controls.
For more information about setting this unit for use as a recorder, see page 1-30.

Switch settings for a player

To use the unit as a player, make the following settings.



Settings and adjustment to use the unit as a player

1 Set the POWER switch to ON.

2 Set the time counter display switch to COUNTER or TC.

3 Set the REMOTE/LOCAL switch to REMOTE.

4 Set the MODE SELECT switch to NORMAL.

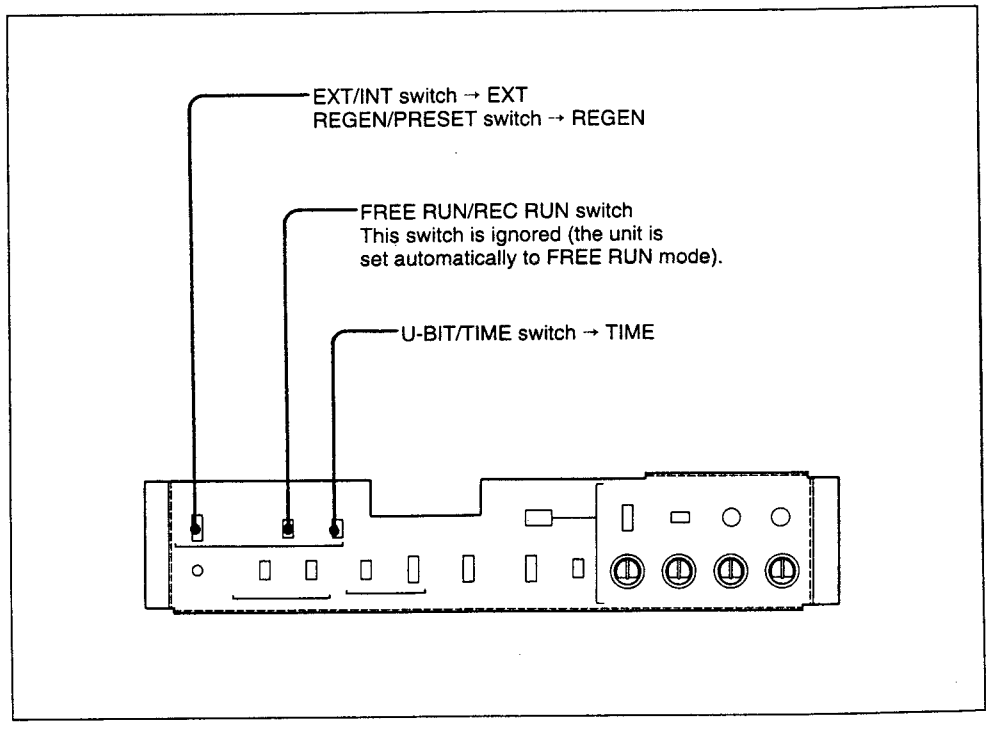
5 Set the VIDEO PRCS switch to EDIT.

6 Set the DUB OUT switch when editing with the DUB OUT connector.
8 mm: Set the switch to this position when connecting another Hi8 VTR.
U-CONV: Set the switch to this position when connecting a U-matic VTR (not SP system) or when using a conventional U-matic tape in an SP system U-matic VTR.
SP: Set the switch to this position when connecting an SP system U-matic VTR and inserting an SP tape.

For more information about setting this unit for use as a player, see page 1-37.

Switch setting when using external time code

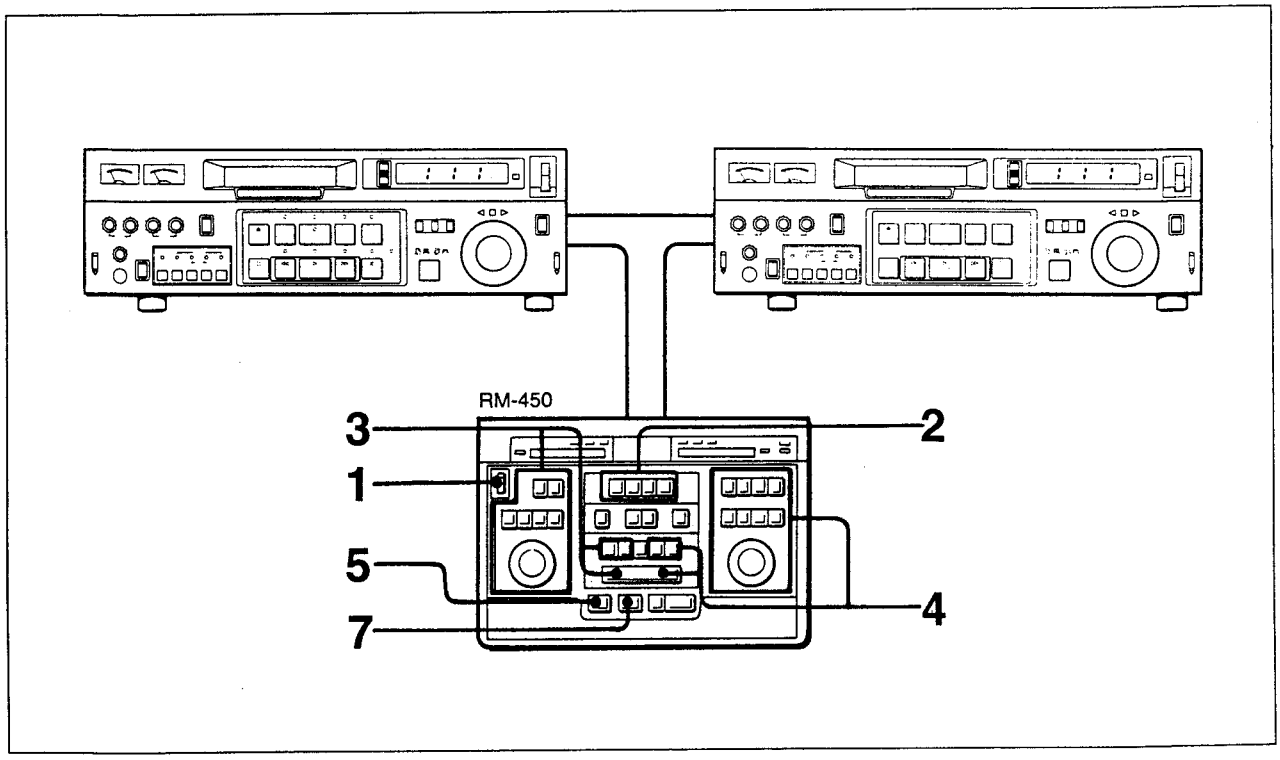
By installing the EVBK-100 SMPTE time code interface kit, the built-in 8-mm time code generator can be synchronized with the signal of an external time code generator input to the TIME CODE IN connector. Also, the 8-mm time code played back from the tape is converted to SMPTE time code and output from the TIME CODE OUT connector. In such a case, you must set the switches as follows.


EXT/INT switch → EXT
REGEN/PRESET switch → REGEN
FREE RUN/REC RUN switch
This switch is ignored (the unit is
set automatically to FREE RUN mode).
U-BIT/TIME switch → TIME

TIME CODE switches settings

Operations for Automatic Editing

To perform automatic editing by using the RM-450 Sony editing control unit, proceed as follows.



Automatic editing using the RM-450

1 Turn on the power of the RM-450.

2 Set the edit mode.

3 Set the IN and OUT points on the player.

4 Set the IN point on the recorder.

5 Press the PREVIEW button to rehearse the edit.
To modify an edit point, use the TRIM button on the RM-450.

6 Repeat steps 3 through 5 until you have set all necessary edit points.

7 Press the AUTO EDIT button to execute the edit.

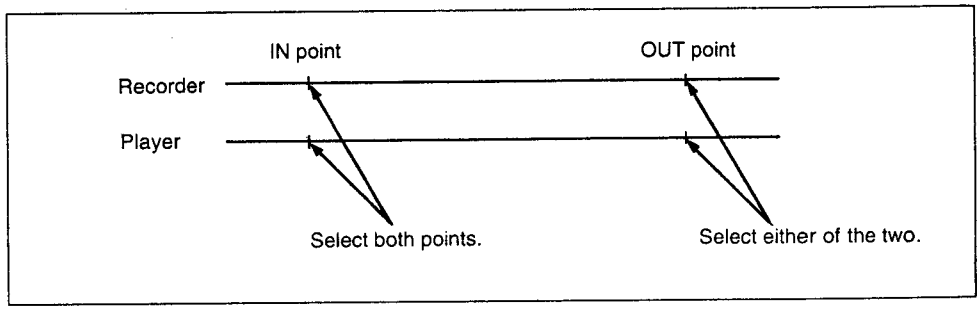
For details of how to operate the RM-450, refer to the instruction manual provided with the unit.

Confirming an executed edit

After editing, press the REVIEW button. The part just edited is played back for confirmation. Then, the tape stops at the edit out point.

Edit points

For four edit points (IN and OUT points on the recorder and player), two IN points and either of the OUT points should be set by the operator. The remaining OUT point is set automatically.



Automatic setting of edit points

Automatic editing with the BVE-600 or BVE-910

You can use this unit as a recorder for A/B roll editing by making up a system with the BVE-600 or BVE-910. Also, you can add the DME-450 digital multi effect system to perform electronic editing with multi effects. For details, read the instruction manuals furnished with these units.

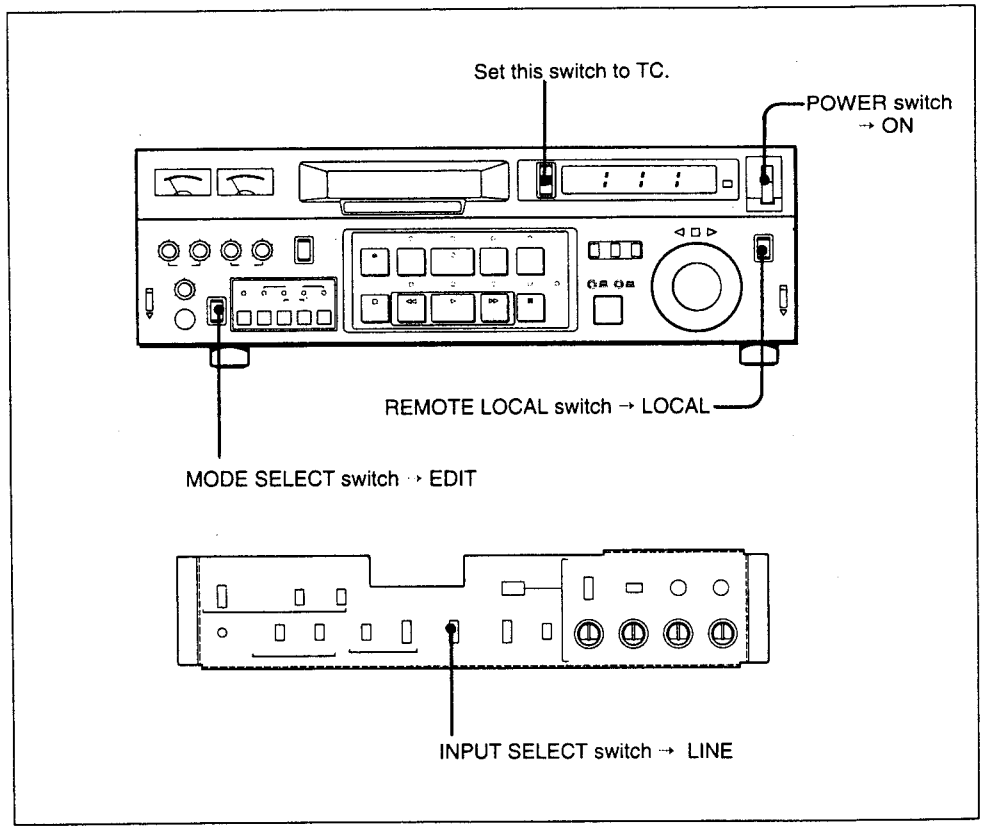
For system connections and reference signal connections, see "Editing System Connections" on page 1-21 and "Reference Signal Connections" on page 1-24.

1-7-3. Manual Editing
— Editing with the PREROLL button

Editing where you set the edit in point and edit out point manually, without deciding these points beforehand, is called manual editing.
By using the PREROLL button, you can easily record with the unit while editing the signal from a video camera or another VTR.
For details of connections, see "Editing System Connections" on page 1-21.

Before Starting

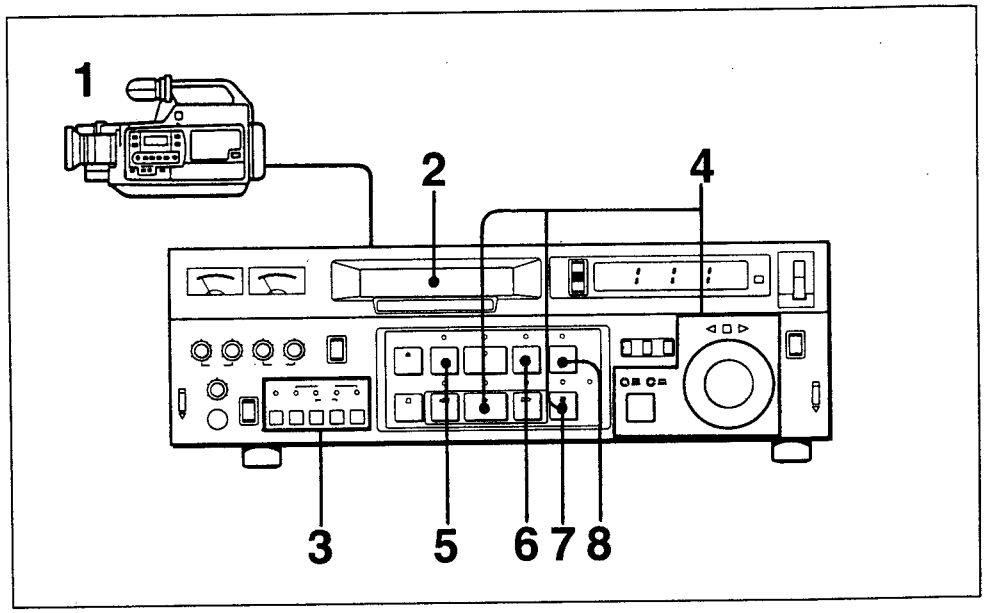
To perform manual editing, set the switches as follows.



Switch settings for editing camera signals

Operation for Manual Editing

To edit signals from a video camera, proceed as follows.



Editing the camera signal

1 Turn on the power of the camera. Adjust the camera as necessary.

2 Insert a cassette.

3 Set edit mode.

4 Play back the tape. Press the PAUSE button at the point where you want to start recording the camera signal (this point is the edit in point).
You can quickly search for a desired point with the search dial.
For information about how to use the search dial, see "JOG and SHUTTLE Mode Playback" on page 1-39.

5 Press the PREROLL button.
The tape is rewound to a point five seconds prior to the edit in point.

6 Press the EDIT button.

7 Press the PAUSE button.
The tape is played back for five seconds, and the signal from the camera starts to be recorded from the edit in point.

8 Press the CUT OUT button to terminate editing.
The unit stops editing and plays back the pictures in normal playback mode.

To stop the tape running, press the STOP button.

Notes

- When recording playback pictures from a VTR, start playback five seconds or more before the edit in point to allow the tape transport to stabilize.
- If you start editing directly from stop mode or interrupt editing by pressing the STOP button, the picture will be distorted at that point.

Prerolling the tape for editing

The PREROLL button is used to rewind the tape a certain distance from the edit in point, to allow the time for the tape synchronized with another tape.

Note on changing the preroll time

The preroll time for this unit is factory preset to 5 seconds, but can be set to any integral number of seconds between 0 and 15. If you do change the preroll time, however, set it so that the amount of recorded material prior to the first in point is longer than the preroll time.

For more information about preroll time, see the explanation of enhanced menu item 214 on chapter 2.

Note

When you start recording from pause mode without using the PREROLL button, the noise may appear at record starting point of the video, audio and time code signals. Use the PREROLL button when starting recording from pause mode.

Head Cleaning

If the picture temporarily disappears or if snow or noise appear on the picture, the video head is probably dirty and should be cleaned.
Clean the video heads with the supplied V8-25CLH cleaning cassette. Read the cleaning cassette instructions carefully, as improper use can damage the heads.

Cleaning

1 Insert the cleaning cassette.

2 Press the PLAY button.

3 Let the cleaning cassette run for about 15 seconds, then press the STOP button.

4 Press the EJECT button to eject the cleaning cassette.

Notes

- Do not run a cleaning cassette for more than 15 seconds at a time, nor use it unless the picture quality clearly indicates the need for head cleaning. Excessive use of a cleaning cassette will shorten the life of the heads.
- Do not rewind the cleaning cassette every time it is used. Use the tape to its end. However, do not use that cleaning cassette again. Use the new cleaning cassette.

Video head replacement

If the picture quality is still unsatisfactory after cleaning, the video heads may need to be replaced. The heads have a life of approximately 500 to 1000 hours. With this unit, the total operating time of the heads can be checked with dial menu 205 HOUR METER (DRUM).

Moisture Condensation

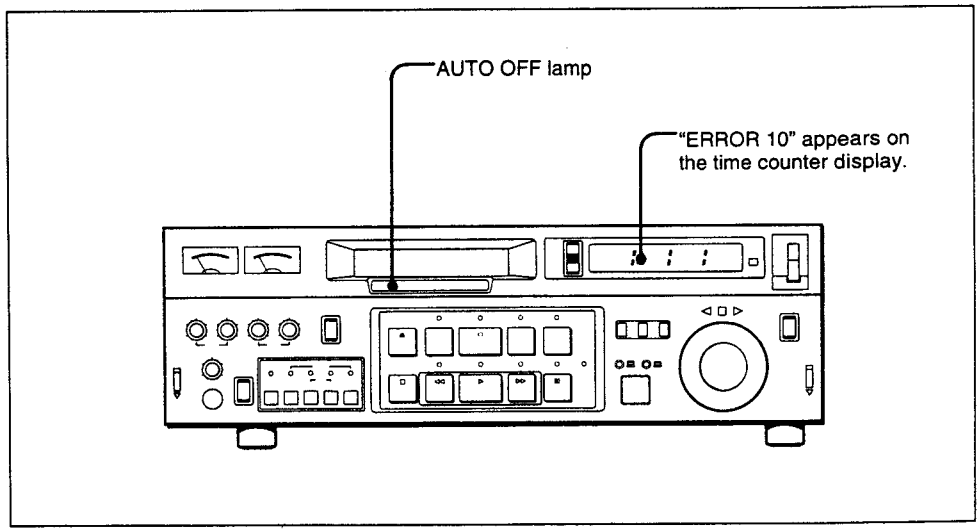
Moisture can condense on the head drum and tape guides when the unit is moved from a cold to a warm location, when the heating turned on in a cold room, or when the unit is placed in a very warm room.
Videotapes played with the unit in this state may adhere to the moistened surfaces. To prevent this, the unit features a condensation detector.

Note

The condensation detector requires about 10 minutes to detect moisture on the drum and tape guides. When using the unit under conditions like those described above, wait about 10 minutes before attempting to turn on the power.

When moisture is detected

If moisture is detected on the head drum during operation, the AUTO OFF indicator on the front panel lights, and the "ERROR-10" message is displayed in the time counter display.



Indications when moisture is detected

As soon as moisture is detected, the drum and capstan motors halt, the cassette is ejected, and the drum begins rotating again. In this state, all unit functions are disabled.
Once the moisture has evaporated, the AUTO OFF indicator goes off and the error message disappears.

If the AUTO OFF indicator lights or the "ERROR-10" message is displayed when power is turned on

Leave the power on, and wait for the indicator to go off and the message to disappear. Cassettes cannot be inserted while the indicator is lit.

If the AUTO OFF indicator does not light and no error message is displayed when the power is turned on

It is safe to begin using the unit.

Note on editing in standard 8mm mode

Do not do video insert editing and audio insert editing at the same time. Please perform audio and video insert edits separately when insert edits are required in standard 8mm mode.